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Resistance to Learning in Mandatory Training Contexts: Design and Construction of a Diagnostic Instrument

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To the Graduate Council:

I am submitting herewith a dissertation written by Jonathan E. Taylor entitled "Resistance to Learning in Mandatory Training Contexts: Design and Construction of a Diagnostic Instrument." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Educational Psychology and Research.

Ralph Brockett, Major Professor

We have read this dissertation and recommend its acceptance:

Katherine Greenberg, Tricia Redeker Hepner, John Lounsbury

Accepted for the Council:

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Resistance to Learning in Mandatory Training Contexts: Design and Construction of a Diagnostic Instrument

A Dissertation Presented for
the Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Jonathan E. Taylor
May 2010

DEDICATION

This dissertation is dedicated to my wife Debbie who has so strongly supported and advocated for me throughout this process, and by whose loving self-sacrifice I have been able to succeed in this endeavor.

ACKNOWLEDGEMENTS

I would like to express my deep gratitude to Dr. Ralph Brockett for his tremendous support throughout the entire doctoral process. Each member of my committee went far beyond what was required in their support of my learning experience and dissertation research. Dr. Katherine Greenberg offered learning and scholarship opportunities which have been formative during my time in Knoxville. Dr. Tricia Redeker Hepner supported me as I wandered into unfamiliar territory and struggled to learn and assimilate different approaches to educational problems. Dr. John Lounsbury provided endless support and saw in me statistical abilities that I did not, at times, believe I had.

It is imperative that I extend the warmest appreciation to Dr. Howard Baetjer, of Towson University, who inspired me so long ago to be where I am this present day. His passion for knowledge and teaching infected me, and nurtured in me the dream to be a scholar.

I also thank the officials and members of the police department serving as the population for this study, for providing unprecedented access and pervasive support.

I would like to express heartfelt appreciation to my wife, Debbie, to whom this dissertation is dedicated, my daughter Kenzie who so often made me think of the future life I was trying to provide, and my son Jack who made me smile, even through the challenges. I offer a warm expression of appreciation to my mother, Dorothy, who provided extensive moral and financial support, as well as regular childcare during the entire PhD process. Her dedication and tireless support made success a possibility. My father-in-law, Donald Gibbons, has provided sustained and much need support and encouragement throughout the years, and has my sincere gratitude. I also express immeasurable gratitude to my aunt and uncle, Murrel and Jan Taylor, who, in the midst of their own struggles with illness, have sustained my family throughout our time in Knoxville through their selfless support. To all of my friends and family, I convey my heartfelt appreciation for providing a solid foundation of encouragement and assistance, all of which has made it possible for me to successfully pursue this aspired milestone in my life.

Abstract

The purpose of this study was to design a valid and reliable instrument that contains original scales measuring learning resistance behaviors and cognitions, along with four other hypothetically related factors, resentment, disinterest, overconfidence, and perceived social norms. This process entailed constructing valid items for each of the five included scales; testing those scales for reliability using internal consistency analysis; and validating those scales using external criteria. The multiple scales were tested for intra-correlations to support or disconfirm a series of hypotheses reflecting the hypothetical relationships between learning resistance and the other four included factors. The resultant instrument contains five reliable scales, and the Openness Scale shows a strong negative correlation with the resistance scale, providing some criterion-related validity. Very strong positive correlations exist between all included scales, which suggest the need to provide additional indicators of discriminant validity in future validation studies on this instrument.

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CHAPTER I

INTRODUCTION TO THE STUDY

According to the U.S. Census Report for the year 2000, there were 6.2 million school teachers in the United States. In 2004, there were 836,787 law enforcement officers in the United States (U.S. Department of Justice, Bureau of Justice Statistics, 2004). In addition, there were just under three million federal civilian employees (U.S. Census Report, Federal Civilian Employees, 2006) and over 16 million state and local civilian employees (U.S. Census Report, State and Local Civilian Employees, 2006) in the United States in 2006. The members of this group of approximately 26 million United States citizens are routinely subjected to mandatory training of some type. If groups from the private sector such as the medical community and other professional groups were included in this number, the total would be absolutely staggering.

Anyone who has been a participant in such training, either as a student or as a teacher, is acutely aware of the many social and psychological dynamics involved in this type of learning environment. One factor in particular, that of learner resistance, is particularly salient during these training or educational activities. Participants often walk away with a "bad taste in their mouth," thinking that the training was useless and a waste of time. Teachers, trainers, and facilitators often leave the sessions feeling frustrated because they did not seem to "connect" with the participants and they realize, on some level, that the training was not particularly effective. Despite this frequent level of disappointment and frustration, both parties are able to deal with these feelings by simply reminding themselves that it was a requirement and that it has been satisfied. All too often, this line of thinking is the hallmark of "successful" in-service training. Further understanding of resistance to learning could, perhaps, facilitate a more healthy outlook by both trainers/teachers, and learners.

Statement of the Problem

Resistance to learning has been addressed in many contexts including, specifically, in relation to the U.S. Board of Education's interaction with the native Alaskan Inupiats (Wexler, 2006), communicative language teaching (Little & Sanders, 1990), workplace training skills (Illeris, 2003b), science education (Moscovici, 2003; Seiler, Tobin, & Sokolic, 2003), library instruction (Antonelli, Kempe & Sidberry,2000), ESL education (Alatis, 1974), reading education (Boldt, 2006), and educational administration (Janis & Boudreaux, 1997). Although there has been much theorizing about resistance to learning, there has been much less research conducted and even fewer attempts to measure it within a given context. The few empirical studies conducted in this area are discussed at length in Chapter Two as are the isolated attempts to measure some aspect of resistance (e.g., Burroughs, Kearney, & Plax, 1989; Illeris, 2002; and Zuna & McDougall, 2004). To date, so far as the author was able to determine, there have been no attempts to measure resistance to learning and/or its possible causes within the mandatory training context. The problem this study addresses, therefore, is the need to construct a reliable and valid instrument which can be used to measure resistance to learning behaviors and cognitions, and a set of correlated factors within a workplace mandatory training context so that appropriate measures can be taken to mitigate such resistance among learners and facilitate a higher level of learning efficiency. To do so would be potentially beneficial both to the employers and the employees.

Purpose of the Study

The purpose of this study is to design a reliable and valid instrument that can be used to measure, and therefore identify (a) the level of learning resistance behaviors and cognitions on an individual and aggregate basis within an organization in the mandatory training setting, and

(b) measure/identify in rank order the levels of boredom, resentment, planned behavior, and overconfidence, also on an individual as well as aggregate level, so as to identify which of the causal factors appear to have the strongest effects on the resistance behaviors and cognitions.

There are two primary reasons these goals have been set. The first is that the general level of resistance behaviors and cognitions can be identified and compared to norms, which will assist administrators and trainers in determining whether or not their organization potentially has a culture of learning resistance. The second reason is to identify the primary contributing factors of that resistance, both individually and in the aggregate so that effective strategies can be formulated by which to reverse or mitigate the resistance. At the heart of both reasons is the sentiment that an "adequate treatment of resistance demands careful analysis of causes" (Caplin, 1969, p. 37).

Armed with this information, administrators and trainers could have an awareness of the degree to which the learners in their organization resist learning as well as the reasons for that resistance. This information can be used to assist decision-making when looking at the aggregated data results (if there seems to be an over-arching culture of resentment within the organization), such as restructuring the training process, requirements, or other program planning philosophies and logistical details. It can also be used to make decisions concerning individual employees, such as addressing issues unrelated to training which might be affecting that employee's attitude toward training.

A specific example that may help to clarify the researcher's conceived purpose of the diagnostic instrument is a situation in which the instrument would be issued to several hundred employees of a large company. If the results indicate that the employees' learning resistance score is very high (higher than average based on developed norms), the administrators and

trainers would understand that they had a problem with their training programs or with some other aspect of their organizational culture which was causing their employees to resist learning. By looking at the data from the *same* instrument, it could been observed, for instance, that the score for disinterest was extremely high, which could indicate that existing training staff might need to be re-trained or removed, and/or that new training programs (content, structure, or both) might need to be structured to correct this problem. This analysis can be repeated for the other causal factors.

As previously stated, this process can be evaluated on an individual level. Upon finding that a particular employee significantly resists learning in the organization's training classes and that the employee also has a very high level of overconfidence, it might be determined that some type of intervention needs to be undertaken with the employee or with that employee's specific training context to increase the employee's level of interest. Some acknowledgement should be made regarding the possibility of a response bias when the instrument is not used anonymously (as it could be for aggregate levels). This will be discussed in Chapter IV.

The purpose of the instrument was identified in this section for two purposes: (a) so that the theoretical basis could be developed to provide the construct specificity in a way that is consistent with the over-arching purpose of the instrument, and (b) so that the required level of reliability and the specific procedures to follow in developing norms could be determined to some extent (Lounsbury, et al., 2006).

Research Objectives

This research was conducted with the following a priori objectives in mind:

1. A reliable measure of learning resistance behaviors and cognitions will be developed along with a reliable measure of four related causal factors – overconfidence, disinterest,

resentment, and perceived social norms. Reliability will be established for all five constructs and it is expected that each will indicate internal consistency, having a Cronbach's alpha of at least .80.

2. The instrument will be validated using multiple forms of validating criteria including construct validity, criterion-related validity, and concurrent validity.
3. Confirmatory Factor Analysis will be utilized to demonstrate four factors with constituent items loading onto the resistance behaviors and cognitions scale.
4. A model of learning resistance in mandatory training contexts will be validated through the validation of the 4FLEI.

Naming the Scale

The instrument was named the "Four-Factor Learning Efficiency Inventory (4FLEI) *prior* to data collection and analysis simply to reflect the number of *hypothesized* factors included. The name was not intended to reflect the actual number of empirically derived factors obtained from the results. Naming the scale prior to full validation was simply an effort to provide a common reference point for the reader throughout the next several chapters. It is the author's intention to continue to develop and validate multiple contextualized resistance-related instruments in the future, and different numbers of factors will be included in those instruments depending on the chosen context. At a later time, after more validation testing, the instrument's name will reflect more precision. The decision to avoid the term "resistance" in the title of the instrument, instead referring to it as a learning efficiency inventory, as well as assigning it an acronym for common usage, was based on the premise that "resistance" is often construed as a negative word and could increase the risk of demand characteristics in the data collection (Lounsbury et al, 2005).

Theoretical Perspective

The proposed study is rich in theory due to the multiple constructs being measured. The following section provides a brief overview of the theoretical framework upon which the general premise of the study is based, followed by supporting theory for each of the five additional constructs represented by scales in the instrument.

Adult Learning Theory: The Three Dimensions of Learning

The researcher is using *The Three Dimensions of Learning* (Illeris, 2002) as a theoretical framework and one of many ways to view adult learning. Illeris develops an eclectic theory in which he combines the more traditional focus on the cognitive and social aspects of learning with a third aspect which he labels the emotional. He provides the best summarization of his own theory by writing, "the basic conception of learning in this presentation thus suggests both that learning always consists of two integrated processes of interaction and internalization, respectively and that learning simultaneously comprises a cognitive, an emotional and psychodynamic, and a social and societal dimension" (Illeris, 2002, p.19). Illeris credits Piagetian ideas for the cognitive, Freudian for the emotional, and Marxian for the societal. By combining these three facets of the learning dynamic, Illeris imbues a greater complexity upon the learning process and acknowledges the affective component of learning, thus establishing at least one starting point for the study of a learner's resistance to learning in a given situation.

Additionally, Illeris has addressed resistance to learning by defining and analyzing three constructs which he refers to as the resistance potential, defense, and blocking. All three of these constructs are addressed in detail in the review of the literature and provide a part of the basis for the 4-FLEI model and instrument.

Motivational Theory: Expectancy-Value Theory

Expectancy-value theory (Atkinson, 1957; Atkinson & Feather, 1966; Atkinson & Raynor, 1974) was, according to Schunk and Zimmerman (2007), "a breakthrough in the study of achievement motivation" (p.352). Simply put, Atkinson's theory focuses on two distinct but related aspects that are necessary for one to be motivated. The first is the belief that one can attain a particular objective (i.e., the ability or means to attain it), and the second is that one places a significant enough value on the outcome of that objective to merit sufficient effort. If someone feels that they can accomplish a specific task but does not place any value on doing so, it is unlikely that s/he will attempt to accomplish it. On the other hand, if that same person places a high value on a particular outcome but feels that there are not means to actually accomplish that objective, then that person is not likely to feel motivated to make the (futile) attempt. In this case, two different causes provide for the same outcome.

A further intricacy of this theory is that achievement behavior is embedded in a conflict between hope for success (approach goals), and fear of failure (avoidance goals) (Schunk & Zimmerman, 2007). These two factors vary from person to person depending upon whether an individual's drive to accomplish and succeed outweighs the risk that that same individual could also fail. The expression of the mathematical outcome of this dynamic produces the *resultant achievement motivation* (2007). The significance of approach vs. avoidance goals is that the motivation one has to succeed at a task cannot be viewed in isolation. It must be placed side-by-side with the motivation one has to avoid failure (2007).

Despite the usefulness and durability of this theory, research results were problematic (Kuhl and Blankenship, 1979; Cooper, 1983; Ray, 1982). The strict view that approach and

avoidance drives determine levels of motivation was lacking, and more contemporary achievement theories were proposed to address this and other weaknesses.

Contemporary expectancy-value theory. Expanding on earlier models, Eccles and Wigfield (Eccles, 1993; Eccles & Wigfield, 1995, 2002; Wigfield, 1994) used data from a large sample of adolescents to identify four psychometrically distinguishable components of achievement values, which include attainment value, intrinsic value, utility value, and cost (Anderman and Wolters, 2007). In this model, attainment value refers to the value one places on the attainment of the outcome (goal). Intrinsic value relates to the level of enjoyment one has while actually being engaged in the activity. Utility value refers to perceived usefulness of the task, and cost reflects the more negative side of the activity in that it points to what one has to give up in order to engage in the task and attempt to reach the goal and achieve the desired outcome.

A fifth dimension, sensation value, has been suggested by Anderman, Noar, Zimmerman, & Donohew (2004). Sensation value, based on an information processing perspective (Byrnes, 2001), is used to describe the "level of sensation, novelty, complexity, or physical stimulation" which may serve to increase interest by "high sensation-seeking individuals" (Anderman and Wolters, 2007, p.374). The idea that certain individuals have an elevated need for sensation was originally posited by Zuckerman (1979) and seems to support this fifth dimension.

Educational Psychology: Social-Cognitive Theory

Social Cognitive Theory is often referred to as a single theory and refers to the work of Bandura (1986). In this dissertation, when *social cognitive theories* (plural) is used, it can be considered a reference to the collection of theories that have come to be recognized as being

social cognitive theories. When *social cognitive theory* (singular) is used, it can be taken to mean the work of Bandura and his associates (Bandura, 1986, 1997, 2001; Badura & Walters, 1963).

Social cognitive theories are an extension of Rotter's (1954) earlier social learning theory and "incorporate constructs concerning individual's expectations and values, but expand the original cognitive framework by highlighting how students reconcile the personal and social to make judgments about self, likely outcomes, and values associated with tasks and outcomes" (Perry, Turner, and Meyer, 2006, p.331). Check this to see what paper actually contains it. Something is off. Rotter wouldn't be talking about his theory being modified in such a way.

Bandura (1986) refers to *triadic reciprocality* in which the reciprocal interactions between behaviors, environmental factors, and personal elements are framed.

Two of the most important constructs within social cognitive theories are self-efficacy and self-regulation. Both of these constructs fall under the realm of individual beliefs about competence and control (Schunk and Zimmerman, 2007). Competence beliefs are defined as "students' perceptions about their means, processes, capabilities to accomplish certain tasks" (p.349). Control beliefs, on the other hand, are "student's perceptions about the likelihood of accomplishing desired ends or outcomes under certain conditions" (p.349). Self-efficacy is a competence belief that refers specifically to individual's beliefs about their ability to learn and perform activities at certain levels (Bandura, 1997). Self-efficacy is differentiated from self-concept, which has a more global and less domain-specific connotation, and from one's actual level of ability, which, of course, does not always reflect one's perceived ability. Self-efficacy can affect individuals across a wide array of learning contexts in a variety of ways (Bandura, 1997; Pajares, 1996; Schunk, 1995; Schunk and Zimmerman, 2007). It has been shown to influence which learning activities an individual chooses and which are avoided (Schunk and

Zimmerman, 2007). Additionally, it can affect how much effort is expended, how persistent one is, and how much one actually learns (2007).

Self-regulation, or personal agency, is a control belief and another strong component of social cognitive theory, which refers to the perceived level of control (agency) one has in a given context. One's perceived agency is necessary along with an adequate level of self-efficacy in order for one to be motivated to engage in a task. There are many things which can aid in boosting self-efficacy but perhaps the most important is that of mastery experiences, or highly successful experiences in the particular domain.

Piagetian Theory: Assimilation and Accommodation

Piaget's (1951) ideas of schema formation, assimilation and accommodation, and the individual's constant drive to establish equilibrium is at the heart of many forms of resistance to learning. The process of assimilation is, simply put, the act of experiencing something new in the environment and constructing it in a way so that it fits with one's existing perceptions and ideas. Accommodation occurs when one's experience is so far outside any existing perceptions that it seems impossible to reconcile it with previous experience or learning. In this case, the individual must change his or her own perceptual framework – how he or she "knows the world" – so that the new piece of information or experience can fit in a way that will allow for equilibrium. Simply put, in assimilation, the learner adapts new perceptions to fit his or her past experiences, while in accommodation, the learner changes his or her understanding of reality so that it is a better fit with the newly perceived information. More is said of this in the following chapters.

Individual Constructs of the Study

While the proposed instrument has, as its central construct, resistance to learning, it will also be measuring four other factors or constructs that are hypothesized to be related to the learning resistance construct. These four factors are overconfidence (presumption), disinterest, perceived social norms, and resentment. Each of these constructs is supported by academic literature and theory and, since the review of the literature is centered primarily on resistance to learning, the basis for the supporting constructs are provided in brief form below.

Disinterest. Interest, or rather the lack of interest, has been long recognized by practitioners as a cause for resistance to learning. More recently interest has become the focus of theory and research and as such, has begun to show up in the literature more frequently. Interest is another perspective on values, which is examined in some detail by Renniger (2000) and Schraw & Lehman (2001). These scholars identified two types of interest: personal or individual interest, and situational interest. Personal interest is used to indicate an ongoing state of interest in a specific area of focus or domain, while situational interest is used to refer to a more context-specific interest. Perhaps one of the most noteworthy applications of making the distinction between these two types of interest is the claim by some that it is possible to design learning situations in a way that might elicit situational interest (Schraw, Flowerday, & Lehman, 2001; Schraw & Lehman, 2001).

Contrasted with personal and situational interest is a distinct type of interest referred to as *state* interest (Krapp, Hidi, & Renniger, 1992). State interest is used to recognize the fact that at any given time an individual may or may not be in a state of interest. Anderman and Wolters (2007) provide a cogent explanation of how the state of interest is related but distinct from personal and situational interest by writing that, “When individuals are in this state of interest, it

may represent the activation of some ongoing personal interest, or it may be the result of a situationally interesting context, or some confluence of both influences" (p.375).

This focus on interest and its relationship to motivation brings to mind a similar but converse construct discussed and researched by Sawin and Scerbo (1995); Taylor, Kass, Vodanovich, and Stanny (2000); and Kass, Vodanovich, and Callender (2001), which focuses on a distinct *lack* of interest referred to as either state boredom or trait boredom (also known as boredom proneness). State boredom has been defined as "a state of relatively low arousal and dissatisfaction which is attributed to an inadequately stimulating environment" (Mikulas & Vodanovich, 1993, p. 3), while trait boredom, or boredom proneness is defined as "…experience[ing] varying degrees of depression, hopelessness, loneliness, and distractibility. Common tasks are perceived as requiring effort, with dissatisfaction with one's work and psychological well-being" (1986, p. 14). The constructs of state and trait boredom are mentioned here because they seem to address the same set of issues from the opposite direction than that of interest.

Overconfidence (Presumption). Jarvis (1992) identifies presumption as one of three categories of mislearning, and defines it as the tendency of an individual to assume that he or she already has an understanding of something and therefore not allow new learning to register. In the 4FLEI, presumption will be referred to as overconfidence simply because of the familiarity of the term.

Resentment. Reviews of the literature using the word *resentment* have indicated a strong connection with anger and hostility in the sense of aggression (Buss and Durkee, 1957; Oliver and Beech, 2008). In contrast, in the more colloquial sense in which the term is being employed in the design of the 4FLEI, a much less aggressive meaning is assigned. Resentment is used in

this case to refer to feelings of frustration and/or anger felt toward workplace mandatory training and/or any related facet of such training (i.e. management in general, policies, current workplace affairs).

Defined this way, resentment has been most often identified in the resistance literature with critical theory and resistance theory (Giroux, 2001). Despite this, there have been those outside of the critical theory camp who have recognized the "harboring of feelings of resentment" toward training/learning as being one potential cause of resistance to that same training (Craft, 1989, pp. 60-62).

Social norms. Icek Ajzen (1988; 1991) in his theory of planned behavior, identified as one of the primary determinant factors of successfully predicting the accuracy of an individual's future behaviors, that persons *subjective norms*. Subjective norms are, according to Ajzen, a person's "perception of social pressure to perform or not perform behavior" (1988, pp. 116-117). These subjective norms are also referred to as *perceived normative prescriptions* and refer to, more simply, what one thinks it is socially "normal" to do. The effect this might have on resistance to learning could be substantial in a workplace environment since in many cases the mandatory training environment is so routine as to be germane to the workplace culture at large. In such cases, resistance to learning behaviors and/or cognitions that have developed and been sustained over time could very well be perceived as social norms and, as such, facilitate a culture of resistance.

Taking into considerations the constructs mentioned above – resentment, disinterest, overconfidence, and perceived social norms, and their hypothesized correlations, the hypothesized model can be viewed in Figure 1.

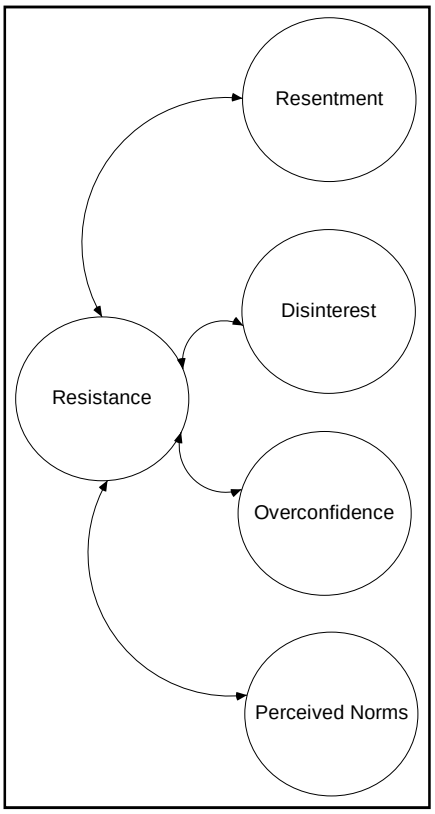

Figure 1.

Hypothesized Model

Significance of the Study

As mentioned in the opening paragraphs of this chapter, the extremely high number of employees subjected with some regularity to mandatory training of some type (over 26 million according to the very limited and narrow criterion used in the introduction alone) calls for increased attention to the issue of resistance to learning. Aside from an increase in research-based studies and academic theorizing, there is a need for practical tools to mitigate learner resistance and to facilitate a higher level of learning efficiency in the workplace.

While a voluminous amount of professional literature has been devoted to learning resistance, the instrument designed in this study offers a unique method by which to measure resistance behaviors and cognitions in the mandatory workplace training context, the provision of a potential diagnostic device for both teachers and learners in that setting, and enhanced opportunities and tools for mitigating the often negative effects of such resistance. In accomplishing these goals, a validated psychometric instrument will serve the academic body of knowledge by providing a validated model of adult resistance to learning in mandatory training environments.

Additionally, the concept of learning resistance has most often been addressed in the literature from specific field or sub-field approaches with a degree of mutual exclusivity. In other words, critical theorists see resistance as the result of power differentials, while cognitively-based educational psychologists tend to approach it as an internal dynamic. While it would be unfair to accuse these (and other) groups of claiming that learning resistance can *only* be understood in terms of their own respective academic fields or philosophies, the effect has been nearly the same as if that were the case. Theory on learning resistance, approached from a multi-disciplinarian perspective, taking into account a wide range of causes, is difficult to find in the literature. This study, in terms of both its synthesis of the literature as well as its methodology, breaks this trend and presents resistance as a more global phenomenon. This approach, if utilized more often in the future, will greatly aid in a more full understanding of learning resistance.

Lastly, the results of this study provide empirical support for the relationships between factors such as overconfidence, resentment, indifference, perceived social norms, and learning resistance. These relationships have, at times, been cited in the literature (see Chapter II) but have often not been supported empirically.

Hypotheses

A set of hypotheses were developed for this study, in addition to the over-arching study objectives simply because they were needed to successfully meet one of the over-arching study objectives. The attempt to validate a model of learning resistance required hypothesis testing since the model as well as the diagnostic nature of the instrument depended on the significant relationships between the individual factors. In light of this need, and based on theoretical frameworks contained elseware in this dissertation, the following hypotheses were derived:

Hypothesis 1: Overconfidence (presumption) in learners will be positively related to resistance behaviors and cognitions.

Hypothesis 2: Disinterest of learners will be positively related to resistance behaviors and cognitions.

Hypothesis 3: Resentment in learners will be positively related to resistance behaviors and cognitions.

Hypothesis 4: Socially normative positive views of resistance behaviors and cognitions as perceived by learners will be positively related to resistance behaviors and cognitions.

Hypothesis 5: Socially normative negative views of in-service training as perceived by learners will be positively related to resistance behaviors and cognitions.

After data were collected for the second analysis it was determined that hypothesis # 4 was untenable because the scale measuring perceived social norms did not have items that addressed learner's views of resistance behaviors and cognitions. Instead, all items of the scale asked the learners questions pertaining to their views of in-service training in their police agency.

Assumptions

The following assumptions underlie this investigation:

1. While all forms and causes of resistance to learning cannot be adequately measured quantitatively, and the over-arching construct of resistance to learning cannot be investigated in its fullest, most complex manner using quantitative methods, some of the more salient and prevalent behaviors/cognitions and related factors can be identified and measured in a way that can be extremely useful and beneficial to both the employer and the employee.
2. Employee learners participating in this research will respond truthfully and thoughtfully.

Delimitations

The following delimitations were noted at the outset of this study:

1. The study will be conducted using the population from one mid-eastern geographic region, and one police agency within that highly populated region; therefore, any findings are applicable in only similar contexts and domains.
2. Because validation is considered a process rather than a one-time conclusive act (Nunnally and Bernstein, 1994), and because this instrument contains five distinct original scales, full validity, particularly discriminate validity cannot be determined for every scale in this single study. A further discussion of this is included in Chapters IV and V.

Limitations

The following limitations underlie this investigation:

1. Due to the selection of the one specific police agency for which the investigator has obtained appropriate permissions, the sample will not reflect a highly diverse police-learner perspective, neither in terms of individual aspects nor in the reflection of departmental or organizational culture.
2. This study was a population study in that every available police officer from all districts and divisions were asked to participate, rather than simply administering the instrument to a predetermined and select group. Despite this, due to the logistics of police operations and the administration of the instrument during working hours, nearly one-half of the entire population was unavailable to participate in the study. The results of the study must be viewed accordingly.

Definitions

Resistance to Learning: Any cognition and/or conscious or unconscious behavior engaged in by an individual in a learning situation, which has as its conscious or unconscious purpose the rejection or limitation of learning

Disinterest: The lack of interest in a given learning task, including state, trait, individual, and situational interest. The 4-FLEI does not differentiate between types of interest (or lack of interest).

Resentment: feelings of frustration and/or anger felt toward workplace mandatory training and/or any related facet of such training (e.g., management in general, policies, current workplace affairs).

Overconfidence (Presumption): The tendency of an individual to assume that he or she already has an understanding of something and therefore does not allow new learning to register (Jarvis, 1992).

Social Norms: A person's perception of social pressure to perform or not perform behavior.

Reliability: "Consistency or stability of a measure or test from one use to the next. When repeated measures of the same thing give identical or very similar results, the measurement instrument is said to be reliable. A measure is reliable to the extent that it is free of random error" (Vogt, 1993, p. 195).

Validity: "A term to describe a measurement instrument or test that measures what it is supposed to measure; the extent to which a measure is free of systematic error" (Vogt, 1993, p. 240).

Content Validity: The term given to the quality an instrument possesses when the items within it "accurately represent" the construct being measured (Vogt, 1993, p. 45).

Construct Validity: "The extent to which variables accurately measure the constructs of interest" (Vogt, 1993, p. 44).

Known-Group Validity: "Predicting and verifying differences on a construct as a function of group membership when there is a high degree of a priori consensus about between group differences on levels of the construct" (Lounsbury et al., 2006, p. 140).

Discriminant Validity: validity which is evaluated "by the degree to which a construct is discriminable (e.g., uncorrelated) from, and nonredundant with, other constructs" Lounsbury et al, 2006, p. 139).

Nomological Network: "A network of expected [theoretical] relationships" (Nunnally and Bernstein, 1994).

Nomological Span: First identified by Embretson (1983), “Empirical network of relationships of the test to measures of other constructs and criterion behaviors” (Messick, 1989, p.17). Nomological Spans are wider than Nomological Networks.

Outline of the Study

Chapter I has introduced the problem to be addressed in this study, along with a conceptual basis, and discussion of the significance, limitations, and delimitations of the study. Chapter II will provide an overview of resistance to learning as it has been presented in the professional literature. In that chapter, the many different proposed definitions and meanings of resistance will be addressed along with the most prominent physical and mental manifestations, hypothesized causes, and suggested mitigation strategies. Following that, Chapter III will address the methods intended for the proposed study, Chapter IV will provide the results of the study, and Chapter V will discuss the findings, implications, and suggestions for future research.

CHAPTER II

RESISTANCE TO LEARNING IN THE LITERATURE

The following Chapter provides an overview of resistance to learning as it has been presented in the professional academic literature. Resistance will be addressed in terms of its definitions, hypothesized and theorized causes, physical and mental manifestations, and proposed strategies for mitigation.

Review Procedures and Organization of the Chapter

A review of the literature was conducted using the following search terms: “Resistance to Learning;” “Learning Resistance;” and Resistance *and* Learn*. These terms were used in Education Resources Information Center (ERIC), Education Full Text, Academic Search Premier, PsycInfo, and PsycArticles - all electronic databases accessed via the University of Tennessee Hodges Library. In a few instances, these search terms were used in the examination of all available text but after these few instances produced such a widespread diversity of unrelated subjects, all subsequent searches were engaged utilizing the “title” search delimitation. The word “resistance” was not used individually after checks in all databases incurred thousands of “hits” (17,000 in one instance and 101,000 in another), and the word resistance was used in many instances in which the meaning was different from the subject of the literature review. Resistance is used often in medical research, referring to biological and physiological matters, and even more prevalently in psychology due to its connection with Freud’s resistance theory, and all of the connections that word and the dynamic it represents have with psychotherapy.

There are many different ways in which the following information on resistance to learning might have been laid out for the reader, and each has its own set of strengths and weaknesses. Due to the widespread confusion, conflicting information, and continuing state of

ambiguity surrounding the construct as found in the literature, the following approach places great emphasis on narrowing down a definition of what learning resistance is and begins with quite a lengthy overview of all of the many definitions and conceptualizations of resistance to learning. Unlike many other constructs, which have a few definitions and then a great deal of supporting material, resistance to learning has an incredible number and variety of definitions, and virtually all aspects of any discussion of it are wrapped up in those different definitions. In an effort to present the reader with the most clear and stable understanding possible, this review will begin with a presentation of the many definitions and end with a much more narrow and easily operationalized definition that will allow the reader to have a firm understanding of the researcher's theoretical point of departure.

After an overview of resistance to learning definitions, the subsequent information will be divided into two primary categories of resistance, *ulterior* and *situational*, (Atherton, 1999) and each of these areas will be fully examined in terms of negative, positive, and neutral-type resistance. Next will be a discussion of the various ways resistance to learning is played out in a learning context in terms of both behavioral and cognitive presentations. An overview of the proposed strategies for mitigating resistance to learning will follow this, and the entire review will end with a statement of the operational definition of 'resistance to learning,' which will be used in the construction of the instrument proposed in this study.

Before going further, the reader should take note that terms such as *resistance*, *learner resistance*, and *resistance to learning* are often used interchangeably and that is true of this document as well. However, whenever possible the author will use the term *resistance to learning* rather than *learner resistance*. The reason for using the longer phrase over the shorter is that the longer term provides (and reminds the reader to focus upon) the subject, or who is doing

the action (learner); the verb, or action being taken by the subject (resisting); and the object acted upon by the subject (learning).

Related Constructs: Organizational Change and Psychotherapy

The word resistance has been addressed extensively in relation to two fields of study not addressed directly in this study. The first is organizational change and the second is psychotherapy. It is important to note this distinction at the outset because those familiar with the literature in these two areas may question their general absence in this context. Organizational change refers to the processes of change within a given organization, which includes cultural artifacts of both a personal and structural nature. Resistance theory, in psychotherapy, usually has its roots in Freud's (1959) psychoanalytical writings and refers to resistance that an individual has to changing some aspect of him or herself, usually within the context of therapy.

In some ways, organizational change, resistance to change in psychotherapy, and resistance to learning are different presentations of the same thing. Learning is, after all, change (Piaget, 1951; Mezirow, 2000), and in that regard, resistance to change is resistance to change, no matter what label it is assigned.

The similarities between these three different aspects of resistance, organizational change, and psychoanalytic resistance to change are not directly addressed in this study. They are noted for cases in which the one seems to be the cause of the other, but the general approach has been to treat resistance to learning as a somewhat distinct phenomenon. This distinction is artificial to some degree and is more a function of the practical limitations of conducting a review of the literature than to highlight particular structural differences between the three types of resistance. Simply put, each of these three areas has such a large volume of literature addressing it that to include all three in the same investigation would be impracticable. Similarly,

there were some indications to the author that resistance has been dealt with in many other fields outside the scope of this study and so, as in most studies, it would be inaccurate to claim exhaustive coverage. *Resistance to learning*, however, has been addressed comprehensively within the guidelines of the search parameters listed above.

Defining Resistance to Learning: Ulterior and Situational Resistance

Resistance is tied very tightly to theories of early childhood development and learning, such as accommodation and assimilation (Piaget, 1951), and also to the defense mechanisms originally presented as a part of the theory of psychoanalysis (Freud, A., 1942; Freud, S., 1959). Neo-Freudian psychologist Karen Horney (1945) defined resistance generally as "a collective term for all of the forces within the patient that operate to maintain the status quo." While neither of these theories specifically addressed the concept of learning resistance, it was from these theories that the modern conception of resistance to learning has taken root.

Resistance, as a construct, has been defined in many different ways. Atherton (1999) portrays the difficulty of attempting to pin down a definition of resistance to learning by saying that "to speak of 'resistance to learning' is in some measure to beg the question" (p.77). Indeed, resistance, as a construct is very "slippery" and does not seem to "sit still in the analytic categories we develop" (Field and Olafson, 1999, p.4). While the traditional practice has been to define resistance as a negative construct, a "force that opposes or retards" (Long, 1994, p. 14), there is a different, more positive view of the phenomenon. Both the negative and the positive views will be considered in the following pages.

A quick look at the scholarship on resistance to learning reveals more than one fundamental approach to the problem. On one side there are critical theorists who both see and cast resistance to learning as being inextricably tied to the clash between the dominant and the

dominated (Cowles, 2003; Field & Olafson, 1999; Giroux, 2001; Moore, 2007; Quigley, 1997). Field and Olafson (1999), writing from a post-structuralist and resistance theory framework, stress that in order to have a more thorough and complex understanding of resistance, it must be seen as a "struggle, or tension" (p. 70). For this group, resistance behaviors and cognitions are considered, at least most often, to be positive, constructive, and beneficial for society at large.

Approaching resistance from a much different direction, there are those who focus more on general personality states and traits and other psychological factors and the resistance to learning they serve to develop (Burroughs, Kearney, & Plax, 1989; Illeris, 2002; Jarvis, 1992). While there are those who have approached resistance from both angles (Brookfield, 2006; Atherton, 1999) very often there seems to be a binary view of these approaches and the dynamics associated with each. Atherton (1999) provided a service to the discussion on resistance by presenting a framework by which to examine the possibility that both of these approaches hold some truth.

Atherton proposed two different categories of resistance to learning: *ulterior resistance* and *situational resistance*. The first, *ulterior resistance*, refers to all resistance that is engaged by the learner against what Atherton calls *supplantive learning*, or learning, which by its very nature must replace the learner's current understanding of the world. This, of course, not only matches with the dynamics of assimilation and accommodation discussed in a previous section (knowledge that requires the learner to accommodate his or her schema rather than to simply "cram" the new knowledge into the learner's existing but contradictory representational framework), but also the critical theory approach, which highlights the disconnect between the dominant group's attempts to transmit its own oppressive culture and the dominated group's interest in liberating themselves from such perceived or real oppression.

Atherton's second category is *situational resistance*, which refers to less complex resistance not related to supplantive learning. Examples of some of the causes of situational resistance are learners disliking specific courses, being frustrated with administrative or delivery factors, and other factors "provoked by the immediate situation rather than underlying concerns" (p. 86). Both situational and ulterior factors will be considered in the 4-FLEI, but it is the situational factors that underlie most of the suggested correlated factors in this study.

As is the case with most typologies, trying to remain strictly loyal to Atherton's usage of the two types of resistance and still fit all types of resistance within that framework is impossible. However, since the author believes that it will be useful in helping to clarify and "package" the far-reaching concept of resistance, Atherton's two types will be used as a loose framework through which to view resistance to learning at large. In order to be able to clearly understand the framework and use it well, it is important to realize that both ulterior and situational resistance can be viewed as positive, negative, or neutral and therefore one should avoid the natural tendency to begin thinking of each type as all one or the other. Each of these three perspectives will be addressed in the following discussion.

Situational Resistance

This section will address different types of situational resistance. While ulterior resistance can be neatly divided into two distinct groups – positive and negative – situational resistance is, as it is used in this study, generally viewed as a negative construct.

Inhibiting, Off-Task, and Oppositional Behavior

One of the clearer definitions of resistance to learning, from a negative perspective, is "the opposition offered by one person to the orders, suggestions, or actions of another," and refers to the resistant student as "one who fails to apply himself [sic] to the learning tasks of the

school" (Caplin, 1969, p.36). McFarland (2001) takes a more global (and sociological) approach in defining resistance as "a central, endemic problem of educational systems…classroom disruptions and defiance of teacher authority [that] bring the instructional process to a grinding halt…" (*cited in* Moore, H., 2007, p. 33). M. Moore (1997) refers to resistance in terms of an unwillingness to accept academic knowledge that does not correspond with one's world view. More in keeping with the traditional classroom view of resistance is Henson and Gilles's (2003) description of students who have "inhibiting beliefs" and therefore "opt out of learning opportunities by removing themselves or sabotaging instruction" (p. 260).

Writing from the perspective of the college classroom and the interaction between the teacher and student methods of communication, Burroughs et al (1989) consider resistance to be all "off-task" behavior in a classroom. Off-task, as they use it, can be seen as loosely comparable to resistance, and is the opposite of on-task behavior, which is any facilitated or permitted behavior that is a constructive part of the learning process in the classroom. It is important to note that while critical perspective definitions of "constructive" behavior almost always include resistance, to Burroughs et al, off-task seems to refer to more of a teacher-centered approach and does not highlight the positive aspects of student resistance, at least not as a primary focus.

Canagarajah (1993) distinguishes between *opposition* and *resistance,* where resistance is more radical and political in nature and opposition as a more unclear and ambiguous phenomenon. Jing (2006) uses Canagarajah's definition of resistance as 'ambivalent student opposition' in her research in an effort to "broaden the sense of resistance as a relatively neutral oppositional force" (p.97).

Mislearning: Presumption, Non-Consideration, and Rejection

Mislearning is a much easier concept to describe. Mislearning occurs when an individual is involved in a learning activity and learns something markedly different from the intended learning objective (Jarvis, 1992). While this could occur in a self-directed learning situation, it is more prevalent in a classroom setting. Consider an example where the teacher is attempting to teach students a specific idea, such as the psychological idea of schema formation, and the students learn something completely unintended, such as the idea that cultural stereotypes, because of their relationship with schemas, are quite natural and useful. This is not at all what the teacher is trying to convey, and, in fact, can be damaging to the students and the community. While this specific example points out how mislearning could entail learning something unhealthy or "incorrect", it is important to realize that often mislearning entails learning something different from what was intended, but of equal (or perhaps greater) value or accuracy.

Three categories of mislearning are *presumption*, which refers to the tendency of an individual to assume that he or she already has an understanding of something and therefore does not allow new learning to register, *non-consideration*, referring to the dynamic whereby an individual hears new ideas, but does not register them due to being too busy or fearing where the new ideas might lead, and *rejection*, which refers to an individual, on a more conscious level, not wanting to learning something (Jarvis, 1992). Illeris (2002) also briefly mentions mislearning, defined in a similar way. In this discussion of situational resistance, the view has been a generally negative. There are, however, neutral and even positive views of resistance, and those views are addressed in the next section.

Ulterior Resistance

In the preceding paragraphs, negative situational resistance was covered. In the next section, neutral and positive views of resistance are addressed. It is difficult to clearly discern the line between any given type of resistance and a determination of either positive or negative value, but an attempt has been made to arrange them this way to gain a clearer framework for understanding the phenomenon.

Negative, Neutral and Positive Resistance

Looking at resistance from a completely different angle, some scholars have suggested that resistance to learning can be, and often is, a positive phenomenon rather than a negative one. The following section begins by examining more neutral views of resistance - that is resistance that can be either positive or negative depending upon its causes, reception, and management. Following these neutral views, a shift toward more overtly positive views of resistance will reveal a great deal of breadth to the resistance literature.

Assimilation, accommodation, and the resistance potential. It is difficult to discuss the resistance potential without first looking at the learning processes of assimilation and accommodation. The identification of these two processes is based upon Piaget's learning theory (1951). Piaget's theory rests upon an individual's continual quest for equilibrium between that individual's schemas and new experiences, which often contain contrasting information. Through a process of adaptation, individuals use assimilation and accommodation to maintain a steady equilibrium with their environment.

The process of assimilation is the act of experiencing something new in the environment and constructing it in a way so that it fits with one's existing perceptions and ideas. Accommodation occurs when one's experience is so far outside any existing perceptions that it

seems impossible to reconcile it with previous experience or learning. In this case, the individual must change his or her own perceptional framework, how he or she "knows the world," so that the new piece of information or experience can fit in a way that will allow for equilibrium.

Simply put, in assimilation, the learner adapts the environment to fit his or her past experiences, while in accommodation, the learner changes the environment (in his or her own mind) to fit the past experiences. For example, if a woman is walking down the street in a small southern town, and she happens upon a person coming the other way who acts in a rude manner, the woman might feel temporary discomfort because this new information or experience does not match her preexisting mindset that everyone in this small southern town is warm and friendly. To resolve this discomfort or lack of equilibrium, the woman may either assimilate this experience into her existing perceptual structures, perhaps by choosing to believe that that person was an outside visitor and did not live in the town, or, by accommodating her perceptual structures by changing or expanding her overall view of the town to accept the fact that while most residents are friendly, there are some who are not.

Writing from the theoretical framework of Piaget's learning theory, and Freud's theory of psychoanalysis and its ongoing struggle between the "different layers of the personality engag[ing] in fierce conflicts both with each other and externally with other people and societal realities" (p.80), Illeris (2002) identifies the *resistance potential*. Piaget, on one hand, writes of a series of conflicts that are generally resolved by assimilation and accommodation, while Freud writes of a process that can result in healthy growth and development, but just as easily result in stagnation and a lack of growth and development. Illeris' own theory of learning, a triad consisting of the forces or influences of emotion (affect), society, and cognition, combine with these other theories to identify the existence of the resistance potential.

The resistance potential is a form of psychological resistance that an individual exerts when he or she is faced with some force that conflicts with his or her inherent desire for life fulfillment. He claims that "the potential for life fulfillment always also contains the potential for resistance to conditions that limit that life fulfillment," and that "generally speaking, the resistance potential is ultimately biologically embedded in humans as part of the human equipment in the struggle for survival…" (p.81).

One way of looking at it, which may eliminate some confusion in this area, is that the resistance potential is, in effect, the learner's *personal* resistance to the learner's perceived *environmental* resistance. The resistance potential drives the learner to resist what he or she identifies as resistance to the life fulfillment potential. It is essential to understand that all discomfort that is followed by either accommodation or assimilation is not necessarily an engagement of the resistance potential. The resistance potential denotes a greater, stronger environmental force at play. In other words, the resistance potential always implies an existing state of disequilibrium, but not all states of disequilibrium involve an activation of the resistance potential.

Perhaps the most important aspect of the resistance potential is that, contrary to first appearances, it is often a driving force in creating a positive result. It is important that the idea of a resistance potential not be confused with defense against learning, which will be discussed in later sections of this chapter. All learning requires psychological energy. This psychological energy comes from either the life fulfillment potential, or the resistance potential. A noteworthy theoretical difference between the two is that the life fulfillment potential can be realized through assimilative processes while the resistance potential can only be realized through accommodation. Something similar to the resistance potential shows up in Raney's (2003) call to

view resistance to learning as something to be encouraged so long as it is facilitating critical thought in the learner. This, of course, raises the question of whether resistance to learning is *really* resistance to learning, and will be addressed in later sections of this dissertation.

By returning to the previous discussion of Piaget's theory, these ideas can be reunited in a meaningful way. In striving to remain in a state of equilibrium, individuals exercise either assimilation or accommodation when they come across information that does not fit with preexisting mindsets or schemas. Often, the individual successfully assimilates the new information into the old. In some cases when this does not work, the individual must then accommodate by changing his or her own schemas to fit the new information. While accommodative learning is a vital part of lifelong learning, and is, perhaps most often, an enjoyable process, there are extreme cases in which the new information or experience is so troubling or disrupting that the individual has difficulty adapting (accommodating) to the new information. In this case, the resistance potential would be utilized to better facilitate the necessary accommodation.

A more thorough examination of the accommodation process reveals further delineations between *constructive* and *restrictive* accommodations (Furth, 1987). For the purpose of this discussion, a clear understanding of these terms is not necessary, and it is sufficient to point out that a positive outcome of the resistance potential would be increased learning and expansion of the self while a negative outcome of the resistance potential would be a refusal to accept the newly introduced information, and can lead to defense mechanisms and blocking behavior.

The term *distorted assimilation* is a return to Piaget's theory, which describes the making of erroneous assimilations. An example of this is children who assimilate new and confusing information into a fantasy world that does not reflect reality. An adult example of this would be

prejudice that has developed over time and does not accurately reflect physical reality (Piaget seems to be writing from a positivistic or post positivistic epistemology). Generally, accommodations take more emotional energy than assimilations, so often the choice is made to assimilate new information or experience in a way that does not fit. Continuing with the example of prejudice, it would require more psychological energy to change a part of one's world view, in this case his or her view of a particular cultural group, than it would to just continue to assimilate in a distorted way all new information into the existing schema.

Immersion and 'strategies of action.' In examining the difficulties of teaching science education to disadvantaged learners, Moscovici (2003) suggests that much of what is considered overt behavioral resistance to learning might actually be *immersion* by the learner in the learning experience to such an extent that the learner is not actually able to listen to the teacher. In this case, it is the exact opposite of resistance, instead being a complete engagement in the learning process to the extent that the teacher is alienated from the learner and his or her intense thought and effort. While this might at times create difficulties in the classroom in terms of management and facilitation, it cannot fairly be lumped into the same category as resistance to learning. Similarly, Seiler, Tobin, & Sokolic (2003) refer to resistance as "Strategies of action" that are not aligned with the existing educational framework (for an interesting two-way discussion regarding these issues see Seiler et al., 2001; Moscovici, 2003; and Seiler et al., 2003). Similarly, Heson and Gilles (2003) speak of a mismatch between the learner's culture, the school's culture, and a general mistrust of school personnel and the learning process.

One common thread found in the critical pedagogy literature regarding resistance is that resistance is a broader, social activity rather than merely a personal act. Resistance is "as much a collective process as it is an individual process" (Bell and Marlow, 2009, p.10). Social norms are

very important in the facilitation of all types of resistance and Moscovici (2002) explains that in cases in which the dominant culture of the educators and educational system is different from the culture of the learner, any association with the dominant culture would potentially be seen as betrayal by the learner's peers.

In a similar vein, it has been suggested that schooling is a process in which students are "subordinated" and therefore it is natural for students to resist such efforts in an attempt to form or maintain their own identity (McFarland, 2001). Torrance, a psychologist, wrote of the role of identity formation in resistance to learning as early as 1949, and identity is a common feature in Collins (1995), and also Miron and Lauria (1995).

Conflicting knowledge. Salaman and Butler (1990) present an interesting explanation of resistance although its basis is very similar to the other types of resistance described in this section. These two authors claim that in cases of workforce development and/or training, there is often a clash between the culture of the workplace and the training being presented. In these cases, it is the employee's prior learning that has presented them with a dilemma that facilitates their resistance to the newer information, often based on solid, rational grounds. The author's present an example of a course provided that encourages free-thinking and risk-taking problem solving behaviors in a group of employee learners who work in an extremely hierarchical management structure. Such a strict hierarchical system might have already "taught" employees not to be creative and take risks. In this case the employees have not really resisted learning but have "learned too well" (p.187). Learning is, to the employee, of vital importance and therefore "a barrier to learning is a barrier to survival" (p.184). Salaman and Butler express it best in their own words:

> The point is, of course, that managers learn all the time even when they are not on courses. Especially when they aren't on courses. If they hadn't learnt so much away from the courses they would be more willing to learn on courses. They learn how to survive, how to operate within their organizational milieu. And this learning may be in tension with, even in opposition to formal learning. The problem thus is not that managers won't learn, or that they resist learning but that they have learnt too much and too well. They have 'learnt the ropes' and these lessons about how their organization works may obstruct their openness to further learning. (p. 187)

This is an important idea because it could easily be reconciled with the resistance dynamic found in formal pre k-12 education in which learners may often find that the education they receive in school does not correlate well with the real-life learning they experience outside the formal classroom.

Defense, blocking and rejection. When examining the ideas of defense and blocking, one must do so with the understanding that these two constructs differ from Illeris' (2002) *resistance potential*, discussed in the section on ulterior resistance. While the resistance potential can be either a positive or negative force, defense and blocking are viewed as negative constructs. Illeris (2002) draws attention to the distinction between what he calls "defense" and "blocking." According to Illeris, defense is always negative in terms of learning. He explains the development of defense in the following way:

> Where situations and influences that are perceived as threatening, restrictive or altogether unacceptable do not provoke a directly resistant reaction – perhaps because they are not immediately provocative, or because the person concerned does not have the reserves to rise to the challenge – instead there will typically occur the development of a psychological defense. (p. 104)

The concept of psychological defense mechanisms referred to in this context is closely related to Freud's early work. A few examples of these defenses are repression, regression, projection, and isolation (Freud, S., 1959; Freud, A., 1942). The German social-psychologist

Thomas Leithauser (1977, cited in Illeris, 2002) identified other types of defense mechanisms. Examples of these are as follows:

1. Reduction: Thinking "I know this" of something new.
2. Harmonization: Emphasizing unimportant common traits in conflicting conditions.
3. Displacement: Thinking "Not my department."
4. Leveling: Thinking "This is really no problem."
5. Personification/Scapegoat Positions:

As related to learning, defense can take one of two directions. The first is rejection, whereby the individual simply refuses to accept the new information and to focus on it in any way. In cases of rejection, new information is not permitted into consciousness. The other direction is blocking, phobia development, or distorted assimilations.

Blocking can be thought of as rejection that has become such a habit that it is internalized and no longer requires conscious thought. Blocking can sometimes develop into phobias over time, which can create a great deal of anxiety when exposed to the rejected material. Similar to Illeris' ideas of defense is Jarvis' (1992) *rejection,* which is used to refer to a more conscious effort made by a learner to not learn something.

Despite the subtle differences in meaning between these terms, and adding to the confusion surrounding the phenomenon, *resistance, mislearning, defense, blocking,* and *rejection*, have all been used in different contexts to mean the roughly the same thing.

Critical Theory and Positive Resistance

Those situated in the critical theory camp are quick to point out that resistance *by* the marginalized, disadvantaged, and oppressed, *to* the dominant group and the dominant group's system of cultural reproduction and *technologies of power* (Foucault, 2001), is a positive and constructive set of activities and actions that is instrumental for the emancipation of unheard voices (Giroux, 2001). Critical theory, really a large and general collection of theories, focuses

on the relations of power as they exist in social relations and social order, and attempts to *deconstruct* the grand narratives which serve to subjugate those with less power (Derrida, 1967). The theoretical framework for critical theory is drawn from the work of philosophers and other scholars such as Athusser (1971), Bowles and Gintes (1976), A. Giddens (1994), Bernstein (1977), Habermas (2003), and Foucault (2001). Critical theory is also not a discipline/field-specific phenomenon, but rather transcends most, if not all academic fields (certainly some more than others) and can be found laced throughout contemporary scholarship. The following sections examine resistance to learning from this viewpoint.

According to Giroux (1983), what is needed to combat the reproduction of social domination is a radical pedagogy that seeks "radical transformation" of the social and cultural relations of power rather than the reproduction of the status quo. In his final paragraph of Theory and Resistance in Education (1983), Giroux promotes a radical pedagogy that:

> "…needs to be informed by a passionate faith in the necessity of struggling to create a better world. In other words, radical pedagogy needs a vision – one that celebrates not what is but what could be, that looks beyond the immediate to the future and links struggle to a new set of human possibilities. This is a call for a concrete utopianism. It is a call for alternative modes of experience, public spheres that affirm one's faith in the possibility of creative risk-taking, of engaging life so as to enrich it; it means appropriating the critical impulse so as to lay bare the distinction between reality and the conditions that conceal its possibilities" (p.242).

Generally speaking, in situations where ulterior resistance is engaged, learners often believe that the new information, and possibly the related delivery systems are "assaultive" (Boldt, 2006, p.301). Resistance is seen as a "contestation of dominance" (McNamee, Atwood, Noddings, & Taylor, 2002), and resistance to learning becomes resistance to the exiting social order (Moore, 2007). Ogbu (1991) defines resistance in terms of an oppressed group, as not only actions but also beliefs, tastes, and even negative attitudes toward that which is associated with

the dominant group. This broader social definition of resistance draws the focus of the resistance behaviors toward the conflict between the dominant and oppressed. H. Moore (2007) calls for an examination of student resistance as "serving a form of social capital."

Rounding out and balancing all of these views, Field and Olafson (1999), also writing from a post-structuralist, critical theory perspective, are careful to place limitations on their positive support of resistance to learning by claiming that they do not wish to "romanticize resistance;" "naturalize adolescent resistance;" or "give into the postmodern tendency cy to celebrate resistance" (p. 70). To emphasize this last point, they quote Bordo (1993) who wrote of "press[ing] the rhetoric of resistance into the service of normalization" (p.183).

A Summary of Ulterior Definitions of Resistance

At first sight many if not most of these terms, descriptions, and definitions, appear to be synonymous, and indeed, often in the literature, they are used interchangeably. To do so, however, has often resulted in a tendency to confuse the issues and to oversimplify the concepts. Taken together, all of these terms combine in learning situations to create a mix of positive and negative effects, and it is those effects, the causes of those effects, and the potential ways by which those effects can be mitigated, which will be the focus of this study. In order to do this, the specific ways in which resistance to learning is manifested, that is, the behaviors and cognitions of resistance, must be addressed. In order to discuss the many ways resistance is manifested it is essential that the two broader categories utilized so far in this paper be brought back together. This must be done because generally speaking, most resistance behaviors and cognitions are the same regardless of whether they are attributable to ulterior or situational resistance or, for that matter, whether or not they are positive or negative in form.

Resistance to Learning Behaviors and Cognitions

The term cognitions is used in this section alongside of behaviors because, as the reader will see, many of the resistance activities take place in the mind of the learner and are thoughts (cognitions) rather than external, physical behaviors. In order to properly address resistance to learning, one must be aware of the resistance cognitions which often hinder learning.

While an exhaustive list of potential resistance behaviors and cognitions might prove difficult, most all of them can be boiled down to their more essential basis. The literature on this aspect of resistance provides a comprehensible, if not comprehensive list, which is provided in the following paragraphs. Lastly, the behaviors and cognitions described below are vital in the present study because they served in the process of operationalizing the construct of resistance for the scale design.

Resistance to learning can be seen in the student's rejection of assignments completely, engagement in "mechanical" participation, and/or the reporting of only partial answers (Caplin, 1969). One of the more comprehensive lists of resistance behaviors comes from Burroughs, Kearney, and Plax (1989) and includes: coming to class late, failing to do homework, missing class altogether, sleeping during a lesson, cheating on an exam, coming to class unprepared, refusing to participate in group discussions, open antagonism toward the teacher or peers, and attempts to distract the teacher and others from the lecture or class activity (p. 216).

Subsequently, the same authors developed a research-based list of student "resistance strategies" that include: teacher advice, teacher blame, avoidance, reluctant compliance, active resistance, deception, direct communication, disruption, excuses, ignoring the teacher, priorities, challenge the teacher's basis of power, rally student support, appeal to powerful others, modeling teacher behavior, modeling teacher affect, hostile defense, student rebuttal, and revenge (pp.

222-223). In his discussion of her son's resistance to reading education, Gail Boldt (2006) adds daydreaming, frequent trips to the bathroom, and working at an "excruciatingly slow pace" (p. 300).

Based on a mixed-methods study using the principles of Gestalt psychology as a treatment modality, Craft (1989) developed a list of resistance behaviors and cognitions that include: negative feelings about self and inability to unlock words; avoiding responsibility-waiting for words to be supplied by peers and teachers; unexpressed feelings; relying on authority; non-participation; daydreaming; personal interference; lack of involvement in providing feedback –playing dumb; wanting to leave class rather than engage in discussion; self-imposed limitations; apprehensive about making mistakes; being bored, tired, distracted, playful, afraid to risk failure; rebelling against authority; harboring feeling of resentment, revenge; avoiding personal choice, demonstration of helplessness; and avoid affective part of lesson (pp. 60-62).

Janas and Boudreaux (1997), writing about teacher resistance to change provide four different ways of resisting which, although not applied by these authors to learning resistance, seem to fit well and provide increased analytical power to those wishing to understand how resistance manifests itself. The four types of resistance responses are "No way," "Not now," "Yes, but," and "yes, yes." "No way" is a straight refusal; "Not now" refers to the apparent agreement but subsequent and continuous stalling; "Yes, but" is acceptance but for some stated obstacle; and "Yes-yes" is used by the authors to describe the behavior of those that agree to comply and then purposefully fail to do so.

Of course almost every time resistance to learning appears in the literature it is accompanied by some explanation or description of resistance behaviors and/or cognitions. It

would, however, be a highly redundant and pointless exercise to exhaustively cite them. The author feels that the above lists represent the behaviors and cognitions which are represented across the resistance literature.

Causes of Resistance

Causes of resistance have been addressed in their own section of this review because of the high level of importance placed on understanding such causes. This is important because (a) an "adequate understanding of resistance demands careful analysis of causes" (Caplin, 1969), and (b) the end purpose of this literature review is the author's current research project, which entails constructing an instrument that will measure both resistance and a set of causal factors.

Despite the fact that this section is set aside to display proposed causes of resistance to learning, it must be remembered that many of the causes of resistance were presented in the previous sections on ulterior and situational resistance. In cases in which the causes have already been addressed at length, such as resistance to the dominant culture, those causes will only be briefly reviewed in this section. It is important to explain this because at first glance it may appear that the short nature of this section on causes is not commensurate with the gravity of understanding such causes, and consideration must be given that great detail has been provided on many of these causes in other sections of this paper.

As Addressed in Previous Sections

In review, some of the more prevalent causes of resistance to learning from the previous sections are: resistance to dominant culture; previous learning conflicting with new learning in the workplace; pain associated with Piagetian accommodation of schemes; strategies of action which make sense to the learner but don't fit the culture of the school system; struggles for personal identity formation and preservation; and immersion into the learning process to such an

extent as to render participation with the teachers untenable. These few causes represent much of the literature on learning resistance.

Additional Causes

Returning to Atherton's (1999) typology from earlier, two examples of situational causes would be: not liking courses; and disliking aspects of the administration, teachers, and instructional methods (p. 86). Another cause of situational resistance is a lack of interest, or boredom (Sun, 1995). Lack of interest is no doubt related to expectancy-value motivation theories (Renniger, 2000; Schraw, Flowerday, & Lehman, 2001; Krapp, Hidi, & Renniger, 1992; Anderman and Wolters, 2007; and Schraw & Lehman, 2001). The connections between motivational theory and resistance to learning are covered near the end of this review. Causes of ulterior resistance would be, first and foremost, the concepts discussed in critical theory, and also other causes such as general mismatches between learner and teacher conceptions of learning and the purposes and benefits of learning. The causes described in the following paragraphs are not separated into situational and ulterior resistance types since the reader can, at this point, easily pick them out.

Brookfield (2006), in *The Skillful Teacher: On Technique, Trust, and Responsiveness in the Classroom*, provides one of the more basic lists of resistance causes, which includes the following: poor self-esteem as learners; fear of the unknown; apparent irrelevance of the learning activity; inappropriate level of required learning; and student's dislike of the teacher. Self-esteem is different from Bandura's (1997) self-efficacy in that self-esteem is a more global construct and efficacy refers to one's confidence in a particular ability or domain, but is related to some extent and clearly can result in resistance to learning. Simply not being able to trust one's own ability to learn something can be a significant cause of resistance (Henson and Gilles, 2003).

Caplin (1969) briefly highlights the theories of Rank (1945), and Lecky (1945), explaining that Rank's psychoanalytic approach sees the development of the personal will, the need to differentiate from others, and the successful formation of identity (similar to McFarland, 2001; Torrance, 1949; Collins, 1995; and Miron & Lauria, 1995) at the center of resistance, while Lecky views resistance more in a positive light and as a "normal and necessary aspect of learning" (Caplin, 1969, p. 38). Lecky follows Piagetian ideas pointing toward the idea of "harmonizing" one's views with new information. Similarities can be found in cognitive dissonance theories (Festinger, 1957), which emphasize the inner conflict individuals experience when behaviors and beliefs do not match.

Seiler, Tobin, and Sokolic (2001) found that inner city students brought with them into the classroom the respect-based street culture which failed to match up with the traditional teacher-student, student-student cultural norms of the educational system. In this case, the learners were not resisting learning per se, but rather they were resisting certain cultural norms which happen to be embedded in the way the school system generally chooses to educate learners. This type of resistance is more toward the delivery and interpersonal delivery modes than any form of learning, but such a disconnect between the learner and the teacher/school can obviously hinder learning.

In a qualitative study involving learners in a metacognition training course, Jing (2006) extracted two distinct reasons for the learner's resistance in her study. First, there is the mismatch between teacher and learner goals. Second, there is an examination culture in schools which forces students to center their entire educational experience around tests. The pressures of performance on testing and the perceived incongruence between testing and learning caused the learners to resist.

This mismatch between formal education and the learner's life experiences is also discussed by Quigley (1997) in the context of literacy education. Quigley describes three types of "resisters," those that resist because of teachers, those that resist because of issues with the school system, and those that resist because of boredom. With these three Quigley contributes to the few resistance typologies in the literature. Dembo and Seli (2004) address student's resistance to change in learning strategies, using the more general definition of resistance (to mean defenses, mislearning, blocking, and distorted assimilation). These authors discuss the many possible reasons why students may continue to learn poorly and at the same time, resist any attempt to change or improve their study habits. Their paper addresses four different reported reasons why these students are resistant to learning style change, which they label-"I can't change", "I don't want to change", "I don't know what to change", and "I don't know how to change" (pp.3-6). It is interesting to see that these reported reasons are related to the three categories of mislearning, those being presumption, non-consideration, and rejection.

Illeris (2003a) posits that the failure to obtain learner "buy in" to proposed, or in some cases mandated learning situations is at the base of Danish unskilled laborers resistance to learning. More information regarding this research is provided in the next section. Having now covered all of the many ways in which resistance to learning manifests itself in the learning environment, it is time to examine the strategies for mitigating the negative effects of resistance.

Strategies for the Mitigation of Resistance

Of course how one chooses to deal with resistance in the classroom depends largely on how one views resistance to learning itself. For those who view it in a positive light, it is to be encouraged, facilitated, perhaps guided, but not discouraged or denied. For the most part, the following paragraphs focus on mitigating the negative effects of resistance to learning.

H. Moore (2007) provides six strategies to “promote learning.” The first is to increase social learning experiences by promoting peer teaching and group projects. This is encouraged because such social experiences promote group construction of knowledge, allow observational learning, and encourage emulation. Second, instructional methods should be varied in ways that avoid a strictly lecture-based format, and utilize different types of media to aid in the learning process. Third, expectations for student success should also be varied to include more diverse methods of expression such as interpretation of theatrical, dance, musical, or artistic work, and/or the performance of actual work performance in real-world environment. The idea of using theatrical devices for learning has been written about before and has been applied to subjects as traditional as library education (Antonelli, Kempe, & Sidberry, 2000).

Fourth, opportunities should be provided for students to capitalize on their own personal strengths and interests. Fifth, the “overt use of sociocultural situations and methods that provide authentic contexts and enculturation into an academic disciplinary community” is encouraged. (p.37). Finally, Moore suggests the use of course material that highlights the valuing of diverse cultures, ethnicities, and genders.

Bell et al. (1999) view resistance as being based in structural barriers that emphasize the authoritative nature of teaching, and the submissive nature of learning as the passive reception of “objective” knowledge. Because of this, the many possible strategies for mitigating resistance to learning should address some aspect of this negative, authoritarian view of learning.

Zuna and McDougall (2004), emphasizing positive behavioral support, provide three approaches for decreasing student resistance in the classroom. They suggest that teachers use research-validated methods for shaping behavioral causes of such resistance, utilize more efficient and desirable alternatives to achieve the same outcome that the problematic behavior

has been serving, and emphasize “simple antecedent changes to the environment that often led to substantial improvements in behavior” (p. 18). These authors take a decidedly behaviorist approach to mitigating resistance to learning.

Plax, Kearney, McCroskey, and Richmond (1986) have provided a very long list of Behavioral Alteration Techniques (BATs) all of which utilize either verbal control or nonverbal immediacy. Those strategies are provided in Appendix D. Teacher immediacy, as previously mentioned has demonstrated in empirical studies an effectiveness in reducing resistance and modifying behaviors (Burroughs, Kearney, & Plax, 1989).

Torrance (1949), writing from a psychological perspective, provided a list of 17different techniques for reducing resistance to learning behaviors and cognitions. Like the above BATs, Torrance’s list is also too long to list out in paragraph form and so have been listed in Appendix C.

Antonelli, Kempe, and Sidberry (2000) recommend using unusual methods for teaching otherwise routine subject matter. The authors propose using “theatrical techniques” such as voice, humor, movement, costume, props, music, and rehearsal (p.177) to teach course materials, which, in their case, was library instruction. These techniques seem to address situational resistance rather than ulterior resistance, and primarily focus on the facilitator making the class and learning experience more interesting for the learner. It is doubtful as to whether using theatrical methods would have positive effects on more systemic ulterior resistance such as resentment.

Caplin (1969) calls for an interdisciplinary team approach which would include such specialists as a psychologist, physician, school nurse, social worker, and school teacher. Despite this interdisciplinary approach, Caplin maintains that the “major burden falls upon the teacher,

for it is she who usually has the earliest opportunity to identify the symptoms and make significant contribution to the child of setting in motion the action that can free him from his disabling behavior" (pp. 38-39). He sets out the following "prescription" for mitigating in-class resistance: children are respected no matter what their level of performance; mistakes do not ever earn ridicule; student's are never humiliated; response to errors and inaccuracies is the "earnest effort of the teacher and the class to overcome them;" and one child's gain is never another's loss (p.39).

Brookfield (2006), who has written about both situational and ulterior resistance (although he did not use that terminology), advises teachers to first evaluate whether or not the learner resistance might, in fact, be justified. To mitigate resistance to learning he suggests that teachers (a) build a case for learning, (b) facilitate learning situations in which those with low confidence or low self-efficacy can experience success early on, and (c) approach all resistance with the understanding that it is a normal part of learning and that students do have the right to resist. Students cannot be forced to learn and any teacher who wants to adequately reduce resistance in his or her classroom must first dispel one-dimensional, exclusively negative views of resistance.

Raney (2003), using the term resistance in the same manner as Illeris, proposes that students learn best when active resistance is involved. He encourages teachers to provoke thinking from students because this thinking will cause them to experience more illumination and to learn how to think on their own. He further claims that "students [are] most likely to retain and appreciate knowledge when it is presented as a thing sought (and fought) for rather than as a morsel to be gulped blindly, baby-bird style." To accomplish this, Raney intentionally assigns reading assignments in his literature class that will disappoint and frustrate the students.

He used an example of a story that did not seem to have a "good" ending in that it did not answer questions arising from the story. The ensuing frustration and resistance on the part of the students created a large amount of conversation, and a strong desire to understand the story and why it was written the way it was.

Illeris (2003a) describes some of the difficulties that low-skilled workers have in relation to increasing their education or engaging in the learning required for a job change. He describes defense behaviors in these workers brought on by job counseling recommendations, and placement in a class, by saying that "they usually thought that the placement in which it had resulted was reasonable enough in spite of everything. However, they still experienced it as placement, and this implied humiliation and a negative attitude, which they felt deeply." The problem in this case, according to Illeris, was that the counseling in question did not continue until the worker had completely "bought into" the idea him or herself. By "placing" the individual in a class, the counselors created a situation in which the workers developed a defensive posture prior to even beginning the learning situation. Facilitating "Buy in" then, is the key to reducing this type of resistance.

Instrumental Enrichment, CEA, and Motivational strategies. It should be recognized that there are many other potential dimensions of resistance to learning which are not addressed in this review of the literature. Due to the practical necessity of limiting search procedures, certain additional aspects of the resistance dynamic and related strategies for mitigating resistance have been omitted. A few clear examples of this are Feuerstein's (1980) work on cognitive enrichement, Greenberg's related work with Cognitive Enrichement Advantage (1996; 2000), and many strategies for enhancing motivation to learn (for motivational teaching strategies for adult learners, see Wlodkowski, 2008).

The Role of Motivation in Resistance

It is impossible to address resistance to learning without also examining motivation. Atherton (1999) points out the limitations of the common tendency to assume that resistance can be explained away in terms of motivation. Motivation is so often written about in connection with motivation that it is necessary to make clear the author's theoretical reasoning regarding the connection between motivation and situational resistance to learning[1]. It seems inherently clear that there is a connection between the two, and it could seem as though the two might be, on some level, the same thing. In this section the following three questions will be addressed regarding the relationship between motivation and resistance to learning. They are as follows:

1. What is the nature of the relationship between motivation and resistance to learning, and how is motivation to be accounted for in a resistance to learning model?
2. Given that relationship, why is it important to study and/or construct a model of resistance to learning?
3. How important is an understanding of motivational theory when attempting to understand and use a psychometric instrument which has been designed to measure resistance to learning?

To answer the first question, *how is motivation related to resistance to learning?,* it is the author's assertion that motivation, or rather, low motivation, *mediates* the causal relationship between all seven predictor variables and resistance to learning behavior and cognitions. While the present study does not test a mediation model or causal model, in order to understand the researcher's understanding of motivation and its relationship with learning resistance, a mediation model is included in Appendix A. An in-depth discussion of mediation modeling will

[1] This section on the relationship between motivation and resistance has been modified from the unpublished comprehensive examination paper: Taylor (2009). Motivational theory: Implications for a theory of resistance to learning. University of Tennessee

be avoided in this context but to clarify the use of the word “mediates” the following guideline provided by Baron and Kenney (1986) should be helpful:

> A variable functions as a mediator when it meets the following conditions: (a) variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e. path a), (b) variations in the mediator significantly account for variations in the dependant variable (i.e. path b), and (c) when Paths a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path C is zero. (p. 1176).

In this case, it is suggested that the independent variable is any one of the constructs established in the hypothesized mediation model (see Appendix A) such as disinterest, the dependent variable (outcome) is the resistance behavior or cognition, and the mediator is low motivation. We can then say, using the Baron and Kenny (1986) criteria of mediation, that low motivation can be said to be a mediator if: (a) variations in the level of boredom in an individual result in a significant variation in the level of motivation, (b) variations in motivation significantly account for variations in resistance behavior(s) or cognition(s), and (c) when motivation is controlled for in analysis, the previously significant relationship between boredom and the resistance behavior(s) and cognition(s) is no longer significant. It is the author’s hypothesis that these factors accurately reflect the role of motivation in each of the constructs used in the model and instrument.

Secondly, *given the relationship between motivation and resistance to learning, and the extensive focus on motivation in educational psychology, why is it important to formulate a model of resistance to learning?* When studying motivation, one is often studying the underlying mechanisms by which human motivation is powered. This indeed is a helpful enterprise for many reasons, not least among them the opportunity to understand such mechanisms in a way that will allow the would-be motivator to more successfully and efficiently develop motivational

practices and programs. Simply put, we apply more efficiently and successfully what we understand. There are however, practical limitations of this line of study in that great effort must often be engaged in order to usefully apply the knowledge. Motivation, often a supremely practical phenomenon, suffers the same natural theory-practice gap as does any other element or factor subjected to scholarly examination. On the other end of the spectrum, in the anecdotal realm, teachers, coaches, business owners, managers, and parents, dedicate great focus to understanding the practical, day-to-day components of motivation. In these cases, *what* motivates takes precedent to an understanding of why it motivates. Again, simply put, the pragmatic is in most cases not subject to the theory-practice gap for the fundamental reason that it is created and recognized in action while embedded in a physical context.

The development of a model and the design of an empirical instrument by which to measure specific construct independent variables, represents a complex integration of these two realms of investigation. While each of the two approaches is useful and important on its own merit, a combination of the two into something which will provide specific practice-related implications and detailed plans of action, while at the same time being based upon the great and empirically honored canon of motivational research can only serve to advance the progress of academic and practitioner alike. The proposed instrument is based on a hypothesized model that represents that the unification of motivational theory, and all of its sound, theoretically-based and/or empirically-tested understanding with the real-world, pragmatic power of anecdotally driven causal factors. The combined strength of these two approaches could provide invaluable support to the world of professional training and development in a way that neither of the two formerly mentioned approaches could on their own.

The third question is *how important is an understanding of motivational theory when attempting to understand and design a psychometric instrument which has been designed to measure resistance to learning?* This question has a long version as well as a short version. It is the short version that is best suited to the purposes of this discussion and so the reader will be referred to Nunnally and Bernstein (1994), Creswell (2003), and Lounsbury, Gibson, and Saudargas (1995) for a more detailed overview of the subject matter. To best answer this question, one must turn to psychometric theory and understand that the over-arching purpose of designing a measurement instrument is to produce accurate measurements of the object of study. Essentially it is a question of validity. For the purpose of narrowing the scope of this question, validity will be discussed in terms of construct validity, understanding that, while construct validity does not represent the only acknowledged and important form of validity, "all forms of validity involve scientific generalization and the measurement of attributes is common to all validation," and therefore, "some have argued that there really is only one form of validity, construct validity" (Nunnally and Bernstein, 1994, p.83). Construct validity in this broadest sense is used to describe "whether one can draw meaningful and useful inferences from scores on the instruments" (Creswell, 2003, p. 157). In a more narrow sense, construct validity is only one of many forms of validity, the three most notable being content, predictive, and construct (2003). Construct validity, in its more narrow and specific usage refers to whether or not the "items measure the content they were intended to measure?" (p.157). Using the term construct validity to refer, in this case, to the combination of these types of validity, the goal of instrument design is to have an accurate measure of the phenomenon of study. In order for the instrument to accurately measure constructs and for statistical analysis to indicate significant relationships between suggested factors and constructs, the researcher must use the most accurate theoretical

and empirical information available. In other words, in order for the resistance to learning instrument to be valid, it must be based upon a valid understanding of resistance to learning. If motivation acts as a mediator for resistance behavior and cognition, then the research must also have a valid understanding of motivational theory. Motivation, or motivational psychology, is an essential factor in the study of resistance to learning and cannot be extracted from any effective analysis of that dynamic.

Summary

One of the most difficult aspects of examining these ideas is that they so closely correspond to one another at times that it becomes difficult to tell them apart. They are all related in some way, but this does not make things simpler. Instead, it leaves one thinking that he or she has mastered the ideas, only to realize later that there is still a certain amount of confusion related to just how these terms are connected to one another.

Certainly, the idea of "resistance to learning" has a much deeper, and in many cases different meaning than one would at first think. This confusion was reflected in the literature as well. Many articles addressed resistance in a more broad way to refer to learners presenting obstacles to learning. The most common usage in the literature was the use of the word resistance to refer to mislearning, defense, blocking, and/or distorted assimilations. Despite this overgeneralization, there are many references to these terms in a "packaged" way.

There is no question as to the significant and wide-spread implications of resistance to learning, and the variety of different fields and domains in which it has been studied attest to that. Specifically, the ideas of resistance, mislearning, and defense have been written about in relation to the US Board of Education's interaction with the native Alaskan Inupiats (Wexler, 2006), communicative language teaching (Little & Sanders, 1990), workplace training skills

(Illeris, 2003a, 2003b), science education (Moscovici, 2003; Seiler, Tobin, & Sokolic, 2003), library instruction (Antonelli, Kempe & Sidberry,2000), ESL education (Alatis, 1974), reading education (Boldt, 2006), and educational administration (Janis & Boudreaux, 1997).

Looking at all of these ideas, and attempting to define these terms is a difficult task that most likely could not be undertaken without at least partial disagreement from some area of scholarship. Despite this tenuously stated set of definitions and explanations, three observations can be made. First, all of these ideas provide a framework by which to at least tentatively view the process of learning. Second, however much dispute there might be about how these terms are related, together, they describe a complex, volatile, and at times fragile set of dynamics with which to contend when involved in education efforts. The third and final observation is that the identity, experience, context and affect (emotion) of the learners must always be taken into account in order to have effective learning situations.

As mentioned at the outset of this paper, the term resistance to learning, learning resistance, and learner resistance, all used interchangeably, will, for the purposes of this study, be operationalized in a way that combines Illeris'(2002) ideas of *defense* and *blocking* with the more common usage of *resistance* to provide the following definition for this study: Any cognition and/or conscious or unconscious behavior engaged in by an individual in a learning situation, which has as its conscious or unconscious purpose the rejection or limitation of learning

Methods

Having now established a broad understanding of resistance to learning as it has been represented in the literature, and having arrived at a concise definition to be utilized in the

proposed instrument, specific methods for the design and validation of that instrument can be addressed. The following Chapter provides an overview of the proposed methods of study.

CHAPTER III

METHOD

Chapter I contained a general overview of this study, including the purpose, research objectives and hypotheses. Chapter II included an overview of the professional and academic literature on learning resistance and some similar concepts, and served to set the foundation for the present study. In this chapter the method utilized in the study will be outlined.

Population and Sample

The population for this study consisted of the law enforcement officers in a large, metropolitan police department in the eastern United States. Because of the context-specific nature of this research, that is, resistance to learning in mandatory training situations, the population included all members of the designated police department who are exposed to regularly-scheduled mandatory training. In the present case, the instrument was administered to this population, through two individual studies. Because the population is limited to those members of this specific department, the results may not be generalizable outside of that context. Further validation studies outside those planned for this study would be required in order to determine what, if any generalization, will be possible outside this domain.

In the over-arching study, the instrument was administered at two distinct times. As mentioned above, the combination of these two different instrument administrations (here referred to as Study # 1 and Study # 2), resulted in the participation of all available members of the entire population. In study # 1, a cluster sample (Henry, 1990) was selected as a matter of convenience by a police official, making study # 1 a convenience sample cluster. In study # 2, the instrument was administered to all remaining available members of the population in no particular order.

In a combination of these two studies, the scale was administered to 163 officers. It was expected that there would be a certain number of refusals to participate, improperly completed surveys, and other environmental factors hindering the participation of some of the population. Salant and Dillman (1994) suggest that results from large percentages of the total sample or population may be un-useable due to such factors, and this was true in the current study. While, as far as the researcher is aware, only one person chose not to take the instrument, and only two surveys were intentionally not completed properly, a large percentage of the population was not present on the dates the instrument was administered and where therefore unrepresented. More specific information will be provided regarding the study population and attrition problems in the sections addressing Study # 1 and Study # 2, respectively.

Permissions

Access to law enforcement officers, particularly while on-duty, required several levels of permissions from various "gatekeepers" (Bogdan and Biklen, 2007, p.272). The researcher met with members of the department command staff, which included the chief of police as well as the four deputy-chiefs, and some captains. Permission was granted by the Chief of Police and by the unanimous support of all present members of the command staff. One particular deputy-chief was identified as the primary contact, and that deputy-chief provided a letter formally granting permission to engage in research on department premises during working hours. All subsequent logistics were first addressed through the designated deputy-chief, and were then delegated to various other police officials depending upon which district or division the researcher was collecting data from.

Informed Consent Procedures

A *Form B* was submitted to the Institutional Review Board (IRB) All necessary steps were taken to remain in compliance with the administrative and ethical guidelines of the IRB. This study was believed to be of insignificant risk to the participants as neither version of the instrument required information that would have increased the vulnerabilities of the participants in their specific workplace context, and, beyond this, both versions of the instrument were issued anonymously.

Scale Design

The following pages will describe the process by which the researcher developed and attempted to validate an inventory designed to measure resistance to learning behaviors and cognitions in mandatory training contexts, and identify the degree to which that level of resistance may be attributable to four constructs that are thought to be causally related to resistance to learning. Lounsbury, Gibson, and Saudargas (2006), in their chapter on scale development, summarize the entire process by identifying the following list of requirements: sound theory, construct specification, item development, initial testing, psychometric analysis, and revision of the scale. Although not in this order, each of these areas will be addressed in this section.

Identifying basic purposes of test score use

The importance of identifying the purpose(s) of the instrument at the outset was twofold. The reasons for this were (a) so that a solid theoretical basis could be established from which to provide the construct specificity in a way that is consistent with the over-arching purpose of the instrument, and (b) so that the required level of reliability and the specific procedures to follow in developing norms could be determined to some extent (Lounsbury et al., 2006).

Individual Scales

There are six scales within the instrument, measuring the following six constructs:

1. Resistance Behaviors and Cognitions
2. Resentment
3. Disinterest
4. Overconfidence
5. Perceived Social Norms
6. Openness

The scales for the first five listed constructs were designed by the researcher as a part of this study and were a part of the hypothesized model, while the sixth construct, *openness*, was included as an independent external scale, previously tested for reliability and validity, for validation purposes. The Personal Style Inventory (Lounsbury & Gibson, 2007) has been previously validated and has an internal consistency alpha of .80. The specific role of the Openness scale will be discussed later in this chapter.

The researcher was unable to find any existing scales to measure any of the first five constructs, as defined in this study, with the exception of disinterest, for which there is the Boredom Proneness Scale (Farmer & Sundberg, 1986), which measures the related construct of trait boredom. This scale was not used in the study because the construct of trait boredom differed in many ways from the construct of disinterest, as defined in this study (see page 21 of chapter I).

Each of the newly designed scales in the current study was individually tested for reliability and validity. It was not anticipated that there would be subscales except in the case of the resistance scale. The resistance subscales are further described in subsequent sections. In addition to the five original scales and the openness scale, the instrument included a set of demographic questions.

Construct Specification

Lounsbury et al. (2006) have contended that construct specification, while very basic to the scale development process, has often been overlooked and marginalized. The authors claim that clearly specifying constructs at the outset of the process is "fundamental" to the creation of psychological scales (p.127). All of the constructs presented in this study have been specified in preceding chapters of this proposal (see Chapter I for overconfidence, disinterest, resentment, and perceived social norms; Chapter II for resistance to learning; and the *validation* section of Chapter III for openness). While each of the five constructs used in this instrument has been defined in other chapters and sections of this proposal, a concise definition of the latent variable, or construct, and a description of the observable variables for each, will be provided in this section as well.

Resistance behaviors and cognitions. Resistance to learning has been defined in this study as any cognition and/or conscious or unconscious behavior engaged in by an individual in a learning situation, which has as its conscious or unconscious purpose the rejection or limitation of learning.

In the instrument designed and tested in this study, this learning resistance construct is determined by measures of observable resistance behaviors and/or cognitions. These behaviors and cognitions are considered the observable (directly or indirectly) manifestations of resistance to learning. Resistance behaviors include the following:

1. Repeatedly leaving the classroom during class;
2. Engaging in activities not related to class such as texting, reading, doing crossword puzzles, and talking.

Resistance cognitions include the following:

1. Consistently thinking negative thoughts about some aspect of the class (instructor, material, content);
2. Removing attention from class ("tuning out" the instructor or material).

Additionally, resistance behaviors were considered in terms of *active* as well as *passive* resistance, depending upon which type of behavior or cognition was expressed. This was deemed necessary because the researcher thought, at the outset of the study, that there might not be a great deal of internal consistency between items measuring passive expressions such as negative thoughts about the class ("I can't believe I have to sit here and listen to this…"), and items measuring active resistance such as when a learner gets up and leaves the classroom during training. It was thought that there may be many learners who would mentally "check out" of a class, but who would not, under usual circumstances, argue openly with a teacher or instructor. Based on this premise, two different resistance scales were created, which could potentially be viewed as subscales of the resistance construct. As detailed in the next chapter, the data were not reflective of this division and the two scales were combined in the third study after certain revisions were made.

Disinterest. Using Mikulas & Vosdanovich's (1993) definition of state boredom, disinterest was be defined as "a state of relatively low arousal and dissatisfaction which is attributed to an inadequately stimulating environment" (p. 3). The word disinterest was used in this instrument rather than boredom because the researcher sees importance in maintaining the saliency of the word *interest* and all of its possible implications for training classes and programs. This was indicated by the expression of disinterest/boredom rather than as physical behaviors.

Overconfidence. Overconfidence in this study was used to refer to the tendency an individual learner may have assume that he or she already knows what is being taught (see

presumption, Jarvis, 1992). Overconfidence was indicated by participants as the degree of agreement or disagreement with expressions reflecting that he or she tends to already know as much or more than the instructor and/or the content of the class.

Resentment. Resentment was used in this case to refer to feelings of frustration and/or anger felt toward workplace mandatory training and/or any related facet of such training (for example: management in general, policies, current workplace affairs). This was indicated by the expression of negative feelings toward some aspect of the training.

Perceived social norms. As used in this study, perceived social norms refers to the participant learner's perception of how his or her peers view various aspects of the training. These perceived norms were indicated by the participant's agreement or disagreement with expressions of perceived peer viewpoints.

Openess. In this study, openness is measured by the Personality Style Inventory (Lounsbury & Gibson, 2007). This openness short form, consisting of eight items, was included in the first version of the instrument for the purpose of establishing known-group validity. Openness was measured in the scale by participant's agreement or disagreement with a series of statements related to 'openness' to new experiences.

While the short form of the openness scale was used in the first study, the results indicated a very low internal consistency, and the researcher subsequently made the decision, among other revisions, to incorporate the long (full) form of the openness scale, containing 15 items, in Study # 2. This, along with all other instrument and scale revisions will be discussed at length in Chapter IV.

Item Construction

This section provides an overview of the essential details surrounding the construction of the individual items on all of the scales included in the instrument. There are seven subsections that cover, respectively, the following facets of the item construction process: identifying representative behaviors, number of items, item format, reverse coding, professional consultation, demographic questionnaire, and the openness scale.

Identifying representative behaviors. In attempting to design the individual items for the resistance to learning behaviors and cognitions scale, it was necessary to determine what constituted resistance behaviors and resistance cognitions. To do this, a careful review and analysis of the literature on learning resistance was undertaken, and the behaviors and cognitions represented in the scale were drawn from that literature. Additionally, information was drawn from the researcher's 10 years of professional experience in mandatory training environments, specifically in law enforcement and quasi-law enforcement, as both an instructor/trainer, and as a learner. All of the behaviors and cognitions represented in the resistance scale can be found, in some form, within the Resistance to Learning Behaviors and Cognitions section of Chapter II (pp. 47-49).

Number of items. Initially, in Version A, eight items were developed for each of the constructs being measured. This number is based on Lounsbury et al.'s (2006) recommendation that at least eight items be used to measure a narrow construct, and ten to twelve for a broad construct. Most of the constructs in this case are viewed by the researcher as fairly straightforward, clear constructs; however, as previously mentioned, in the case of resistance behaviors and cognitions, the originally planned eight- item scale was developed into two subscales with eight items each. Each of the five constructs has been assigned 8 items, with

resistance having an additional 8 items, for a total of 48 construct measurement items. Along with these 48 items, there were an additional 8 items included in the openness scale (Appendix F), and 6 demographic items.

In Study # 2, Version B of the instrument contained 14 items for resistance, 7 items for overconfidence, 7 items for resentment, 8 items for disinterest, 15 items for openness, and 11 items for demographic purposes. While Lounsbury et al. (2006), suggest eight items as a general guideline, they also point out that they are usually able to measure narrow traits with "8 items or fewer." Accordingly, it was not viewed as problematic that two the above scales have only 7 items.

Item format. The items for all five scales were constructed as ordered-category items (McDonald, 1999), represented in the form of a four-point Likert scale where 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*. Four-point scales seem to better represent these specific constructs than do the more standard five-point scale and still provide a sufficient spread for use in factor analysis. While McDonald (1999) warns that eliminating a neutral option on an ordered-category item scale could reduce motivation for accurate completion, it is common practice to do so and, in the case of the proposed instrument, the option of expressing a neutral view on an item such as "I am often angry about having to be in mandatory training classes" seemed unnecessary.

Reverse coding. There are very few negatively phrased items due to the nature of the constructs. Wording an item to say something like "I most often try to do really well in class," when reverse coded, might not be an accurate reflection of the opposite view – that the person resists learning. The reason for this is that according to the definition of resistance to learning

used in this study, failing to “try hard” to learn is not considered the same as resisting to learn at all.

Professional consultation. Throughout the entire process of item construction, a professor of psychology, psychometric instrument design specialist, and co-author of a book chapter on scale development, Dr. John Lounsbury, was consulted. Through this consultation process, a nearly constant process of revision was engaged in the formation of both versions used in this study. Throughout that consultation process items were revised, added, or removed from the instrument.

Scoring the Instrument

The instrument was scored by summing up the total value of all of the respondent’s numerical answers for all of the items on each of the scales. The highest possible value is indicative of the highest possible level of the desired construct. For instance, for the resistance to learning scale, which has a total of 14 items, each with a Likert response scale of 1-4, a score of 56 indicates the highest possible level of resistance on the part of the participant, and a total score of 14 indicates the lowest possible level of resistance. This scoring was conducted after all negatively worded items were reverse coded (1 = 4, 2 = 3, 3 = 2, 4=1).

Demographic Questionnaire

Version A of the instrument, as used in Study # 1, contained six demographic questions that followed the items representing the six scales. Those questions regarded age, gender, race/ethnicity, number of years on the department, rank, and current assignment (see Appendix F). With the exception of the number of years as a police officer, which was used to analyze the correlation between “years on” and level of resistance behaviors and cognitions, the demographic information collected was not used to answer the research objectives or hypotheses

in the current study but was useful in providing information that can be used in the formation of future research questions which might include, but not be limited to:

1. What role does gender play in resistance to learning behaviors and cognitions?
2. What role does age play in resistance to learning behaviors and cognitions?
3. What role does the type of job (specific assignment within the organization) play in resistance to learning behaviors and cognitions?
4. Does increased supervisory authority change the level of resistance behaviors and cognitions?

The demographic item used to determine the number of years the participant was a police officer was intended to be used as a part of the instrument validation process and will be discussed in more detail in the section on validation.

Version B of the instrument, as used in Study # 2, was expanded in an attempt to correct or mitigate problems detected in the first study. Details surrounding those changes have already been provided earlier in this chapter and will also be discussed in Chapter IV with the results that led the researcher to make those changes. The demographics section of Version B of the instrument used in Study # 2 contained an additional five questions, which brought the total number of demographic questions to eleven. With the exception of some minor wording changes or typographical error corrections, all of the original six demographic questions remained in the second version (see above). The additional questions were related to the level of education, average grades in high school, level of general boredom across a lifetime, involvement in department training, and interest in training opportunities (see Appendix J)

Instrument Administration

The following section describes the process whereby the instrument, first Version A and then Version B, was administered to the population in two distinct but related studies, Study # 1 and Study # 2. The purpose and utilized methods for each study are provided below.

Study # 1

The purpose of the initial study was to run a preliminary check on internal-consistency reliability to ensure the best selection of items for the larger, primary study. The inventory was designed to be administered on paper and completed with pen or pencil. The researcher personally administered the instrument to the police officers during daily roll call meetings, had them complete the instrument, and collected the completed instrument from participants prior to their leaving the roll call meeting. Due to certain operational concerns of the police department, data needed to be collected during the various roll call meetings, each of which had anywhere from 5 to 35 officer-participants, depending on the district (precinct) and division to which they were assigned.

In the first study, the instrument, which will from this point forward be referred to as *Version A*, was administered to a cluster sample chosen by the researcher's primary contact official. That designated deputy-chief reportedly chose the particular district simply because he was able to contact the commander of that district, a captain, at a desired and convenient time, making the cluster sample of Study # 1 a convenience sample. The convenience cluster sample for Study # 1 included participants from only one specific district, which allowed the researcher to avoid that same district in the subsequent Study # 2 and thus eliminate any possibility of using the same participants for both studies. Using the same participants for reliability and validity testing can "…greatly capitalize on error variance and lead to unreliable results" (Lounsbury, et

al., 2006, p. 134). It was advisable to use a cluster sample in this study because of the organizational and operational structure of the population (Henry, 1990).

Study # 2

In the second study, the modified instrument, which will from this point forward be referred to as *Version B,* was administered to the remaining members of the population. Due to logistical limitations in force because of the police department's operational concerns (i.e. time constraints), the instrument was administered to the total remaining participant sample (approximately 200) in groups of 15- 20 at a time at roll call meetings. Additionally, the various districts and divisions were dispersed within a 1,700 square-mile area, and the roll call meetings began as early as 4:30 am and continued at intervals up until 9:30 pm. Based upon these factors, the various roll calls were visited by the researcher in an order that reflected the practical abilities of the researcher as well as the operational concerns of the department.

Reliability and Validity Analysis

The following sections address the various steps that were taken to test the instrument for both reliability and validity. The first section presents the steps used for testing reliability, while the second deals with the validation process.

Reliability Analysis

There are many reasons why reliability may be low and among them are guessing, participants marking incorrectly by mistake, misreading an item due to confusing wording, fatigue, and grader errors in cases of essay tests (Nunnally and Bernstein, 1994). To ensure that these errors had not weakened the overall reliability of the instrument, reliability analysis was conducted on all items within their respective constructs after both an initial pilot study (Study # 1) and the second, primary study (Study # 2). There is more than one type of reliability analysis

that can be conducted, but absent some significant reason, internal consistency should be checked using Cronbach's coefficient alpha before other steps are taken (Nunnally and Bernstein, 1994). This should be done because if the alpha is very low there is no point in obtaining other forms of reliability because they will be even lower. Cronbach's alpha was used in this case because it takes into account the "major source of measurement error for static constructs" and because it is also "sensitive to the 'sampling' of situational factors as well as item content" (p. 252).

Alternate forms correlation offers another possible way to test internal consistency, but this was not be done in the initial stages of this study due to the foreseeable difficulty in producing alternate forms of the instrument. This was not considered to be of major impact so long as the coefficient alpha was high enough, the sample size was over 300, the instructions were easily understood, and an objective grading scheme was applied. When these factors are evident, there is relatively little difference between the coefficient alpha and the alternate forms correlation (Nunnally and Bernstein, 1994). While almost all of these conditions existed in the first and second study, the overall population size was much below 300. The effects of this smaller population are addressed in Chapter IV. Despite having a smaller population than was initially planned for, multi-part reliability is still widely considered a sufficient alternative to split-half reliability and other forms of reliability testing such as test-retest (parallel, or equivalent-forms) reliability (Webb, Shavelson, & Haertel, 2007). In light of this, and since the option of an alternate form was not immediately available, multi-part reliability was used to determine internal consistency reliability using Cronbach's coefficient alpha.

Internal consistency was checked by subjecting the items designated to each respective construct to internal consistency analysis in which the corrected item-total coefficients were

examined and those not .30 or greater were first examined for structural problems and then, if not correctable, were removed. It was understood that problems with an individual item ($\alpha \leq .30$) could be the result of a problem with the theory itself, but in most cases would reflect a poorly written or contextually inappropriate item. Another possible reason for a low coefficient is the poor organization of items. An example in the present study of an organizational problem that resulted in an item having a low correlation was item # 2 of Version A (.372), which was negatively stated but otherwise the same as item # 1. The researcher suspected that readers might have thought the two items were asking the same thing rather than the opposite. These two items were separated in Version B of the instrument and the subsequent data collection resulted in much higher correlations for that item (.599). A full discussion of the results of Study # 1, the decisions made regarding changes to the scales, and the specified changes is provided in Chapter IV. In addition to looking at the corrected item-total coefficients, the "alpha if item deleted" was also examined for each item and in any cases in which the overall alpha coefficient could be increased by the removal of an item, the item was removed. This process was repeated for each of the five constructs. A full listing of all changes made to Version A are contained in Appendix G.

Validity Analysis

Validity should be seen as "a matter of degree rather than an all-or-none property," and furthermore, validity should be considered "an unending process" (Nunnally and Bernstein, 1994, p. 84). Taking these two factors into consideration, the attempts to validate this instrument must be seen as the initial steps in a process which might go on for quite a number of years beyond the initial project rather than a finite number of "steps" as provided in the following paragraphs.

Koesk (1994) points out two broad types of validity concerns: conclusions and measures. Conclusion validity pertains to the level of accuracy one has in interpreting the results from a given set of measures once they have been administered, while measurement validity has to do with the accuracy of the instrument itself (does it measure what it was designed to measure?). It is primarily the validity of the instrument which is discussed in this section, although it is acknowledged that the validity of the instrument itself is perhaps limited to being only so valid as the interpretation of any generated results/data. Some measurement experts have actually made a point of claiming that an instrument should not really be thought of as valid, rather it is the data that must be viewed as valid or invalid (Messick, 1989).

There are many typologies of validity, (Creswell, 2003; Nunnally and Bernstein, 1994; Lounsbury et al., 2006) and all of them arrange the same basic set of validitation "types" into different structures. Koesk (1994), after making the distinction between measurement and interpretation validity (above) further breaks down measurement validity into three types, which are content, criterion, and construct validity. Of those three, content and construct will be addressed in this study. Construct is then further broken down into three subtypes – convergent, discriminant, and theoretical validity (see Harrington, 2009 for additional discussion on this typology).

Content validity. Content validity is different from most other forms of validity in that it is not measured by a statistic (Lounsbury et al., 2006). Content validity relates to the actual content included in a scale(s) in terms of how well that content fits the construct that is being measured. In this study, and in the construction of the proposed instrument, content validity is being addressed in three ways. It was with an eye on content validity that the researcher has designed the items in the five scales of this instrument by (a) consulting all of the extant

professional and academic literature and related theoretical premises, (b) engaging in consistent consultation with a psychologist and psychometrician at the Univerisity of Tennessee, and (c) drawing on over ten years of personal experience of teaching learners in mandatory training/learning contexts.

Construct validity. Construct validity can best be thought of in terms of attempting to ensure that results obtained from one measure would remain the same in cases where other measures in the domain were used (Nunnally and Bernstein, 1994). Speaking to the interrelated nature of construct validity (with other forms of validity, these two authors go on to write that "some have argued that there really is only one form of validity, construct validity" (p.83). Likewise, Lounsbury et al. (2006) also mention that construct validity is wrapped up in all of the other subsequently mentioned forms of validity. They further claim that "ideally, there is a complete theory surrounding a construct, with hypothesized linkages to other constructs and variables, every link of which is empirically verified in construct validation" (p. 140).

Construct validity has been addressed in three specific ways in this study. First, construct validity was addressed using confirmatory factor analysis (CFA), which can be used to provide an indicator of "goodness of fit" for the model, ensuring that the proposed model, and subsequently, the related instrument, is best fit by the data. A preliminary CFA model was identified based on theory only (see Appendix H). The results of the CFA will be provided in the next chapter.

Second, known-group validation was checked by including items from a scale measuring openness (Lounsbury & Gibson, 2007), one trait using Big Five Models (Costa & McCrae, 1987). Known-group validation can be tested by "predicting and verifying differences on a construct as a function of group membership when there is a high degree of a priori consensus

about between group differences on levels of the construct" (Lounsbury et al., 2006, p. 140). In this case, it was expected that one's level of resistance to learning would be negatively related to one's level of openness, or intellectual curiosity. The hypothesis in this case was: H_1: Higher levels of resistance behaviors and cognitions will be negatively related to levels of openness.

To further develop known-group validity, a set of hypotheses was developed using the data collected from one of the demographic questions – "How many years have you been a police officer?" The following results were expected:

1. Those who have been police officers longer will have higher levels of resistance behaviors and cognitions.
2. Those who have been police officers longer will have higher levels of resentment.
3. Those who have been police officers longer will have higher levels of overconfidence.
4. Those who have been police officers longer will have higher levels of disinterest.

If results showed a significant negative relationship between levels of openness and levels of resistance behaviors and cognitions, and/or these hypotheses, decided a priori, were to be indicated from the analysis, some degree of known-group validation can be said to support the instrument. In addition to these common forms of construct validation, the nature of the instrument itself, being multi-dimensional, with five interrelated constructs (hypothesized), contains a rich nomological network (Cronbach & Meehl, 1955) which, if supported by the data analysis, could add support to validation.

Summary

A multi-dimensional instrument was designed for this study and contained six scales, one of which consisted of two subscales. One of the scales was designed to measure the primary

construct of the study, resistance to learning, four were designed to measure a set of explanatory variables, and one scale, previously tested for reliability and validity (Lounsbury & Gibson, 2007), was included to provide known-group validation for the other scales.

The instrument was named the Four-Factor Learning Efficiency Inventory (4FLEI), based on the number of hypothesized correlated factors, and was administered to police officers employed by a large, metropolitan police department in the eastern United States. The instrument was administered on two distinct occasions in two separate studies, one smaller study for the purposes of establishing preliminary reliability through internal consistency, and a second, much larger study for the purpose of validating the revised instrument. In the first study the instrument was administered to 51 participants using a cluster sample. Of these 51, one was not completed fully and That participant's instrument was discarded.

In the second study, it was administered to the remaining available members of the study population, which was 112. One of the completed instruments had comments indicating that the participant was not interested in completing the instrument. Additionally, this participant had selected all the same number for every question, and the completed instrument from this participant was discarded. It was in this second study that one participant chose not to accept the instrument at all, representing the sole participant to make that choice (with the exception of the participant who completed the instrument by checking all the same number, as mentioned above).

The purpose of the instrument was to measure resistance to learning behaviors and cognitions, and correlate four hypothesized correlated constructs – disinterest, overconfidence, resentment, and perceived social norms – also measured by additional scales, with the primary construct indicated by those resistance behaviors and cognitions. Upon completion and

validation of the instrument, analysis of test score data could be used to determine the level of resistance to learning by employee learners within an organization, along with the rank ordered correlated factors.

Instrument reliability was established by using internal consistency item analysis and obtaining a coefficient alpha of at least .80. Some degree of content and construct validity were established by consulting a psychometrician, and the extant professional academic literature on resistance to learning, as well as several measures of known-group validation. Additionally, the multi-dimensional nature of the instrument itself, containing five scales, provides a firm nomological network (Cronbach & Meehl, 1955), which when added to the other forms of validity, adds theoretical validity.

CHAPTER IV

RESULTS

In Chapter I, the purpose of this research was introduced along with the researcher's objectives, hypotheses, and parameters. Chapter II provided a comprehensive overview of the literature on learning resistance and established a framework upon which to structure the studies. Chapter III recorded the specific methods used by the researcher in the studies along with a detailed overview of the overall structure of the two studies included in this research. In this Chapter, the results from both Study # 1 and Study # 2 will be provided.

Demographics

The demographics of this research will be provided for both Study # 1 and Study # 2, in respective order. There were significant changes in the demographic items used in Study # 2, as compared to Study # 1, and those changes are reflected in the sections below.

Study # 1

Of the 50 participants in Study # 1, 41 participants were male (82%) and 8 were female (16%). One case (2%) did not contain this information. Twenty-four participants (48%) were between the ages of 21-30, 13 (26%) were between the ages of 31-40, 11 (22%) were between the ages of 41-50, and 1 (2%) was 51 years of age or older. One case (2%) did not contain this information.

Eight participants (16%) reported having been a police officer for 0-4 years, 27 (54%) reported from 5-10 years, 6 (12%) reported 11-15 years, and 4 (8%) reported having been a police officer for over 20 years. 5 cases (10%) did not contain this information. These findings are reported in Table 1.

Table 1.

Study # 1 Demographics.

Demographic	Number of Participants	Percentage of Sample
Gender		
Male	41	82
Female	8	16
Age		
21-30	24	48
31-40	13	26
41-50	11	22
>51	1	2
Years On		
0-4	8	16
5-10	27	54
11-15	6	12
>20	4	8
Rank		
Officer	42	84
Sergeant	7	14
Assignment		
Patrol	42	84
Special Unit	2	4
Admin.	3	6
Race/Ethnicity		
Black/African American	22	44
White/Caucasian	17	34
Hispanic/Latino	5	10
Asian	1	2
Native North American	1	2
Other	2	4

Note. Percentages are rounded to the nearest whole percent.

When asked to indicate rank, 42 participants (84%) reported being officers (standard, non-supervisory rank), and 7 (14%) reported being Sergeants (shift supervisors). One case (2%) did not contain the information.

Twenty-two participants (44%) were Black/African American, 17 participants (34%) were White/Caucasian, 5 (10%) were Hispanic/Latino, 1 (2%) was Asian, 1 (2%) was Native North American, and 2 (4%) indicated "other." Two cases (4%) did not contain this information.

Forty-two participants (84%) were assigned to patrol, 2 (4%) were assigned to specialized units, and 3 (6%) were assigned to administrative duties. Two cases (4%) did not contain this information.

Study # 2

Demographic information from Study # 2 is provided in Table 2. Of the 111 participants in Study # 2, 85 participants were male (76.6%) and 24 were female (21.6%). Two cases (1.8%) did not contain this information. Thirty-five participants (31.5%) were between the ages of 21-30, 35 (31.5%) were between the ages of 31-40, 26 (23.4%) were between the ages of 41-50, and 12 (10.8%) were 51 years of age or older. Three cases (2.7%) did not contain this information.

Forty-seven participants (42.3%) reported having been a police officer for 0-5 years, 31 (27.9%) reported from 6-10 years, 8 (7.2%) reported 11-15 years, and 24 (21.6%) reported having been a police officer for over 16 years. One case (.9%) did not contain this information.

When asked to indicate rank, 95 participants (85.6%) reported being officers (standard, non-supervisory rank), 14 (12.6%) reported being Sergeants (shift supervisors), and 1 (.9%) reported being a Lieutenant (District Commander). One case (.9%) did not contain the information.

Forty-three participants (38.7%) were Black/African American, 37 participants (33.3%) were White/Caucasian, 9 (8%) were Hispanic/Latino, 2 (1.8%) were Asian, 1 (.9%) was Native North American, and 3 (2.7%) indicated "other." Four cases (3.6%) incorrectly completed this item, and 11 (9.9%) did not contain this information.

Table 2.

Study # 2 Demographics.

Demographic	Number of Participants	Percentage of Sample
Gender		
Male	85	77
Female	24	22
Age		
21-30	35	31
31-40	35	31
41-50	26	23
>51	12	11
Years On		
0-5	47	42
6-10	31	28
11-15	8	7
>16	24	22
Rank		
Officer	95	86
Sergeant	14	13
Lieutenant or Above	1	1
Assignment		
Patrol	77	69
Special Unit	31	28
Admin.	1	1
Race/Ethnicity		
Black/African American	43	38
White/Caucasian	37	33
Hispanic/Latino	9	8
Asian	2	2
Native North American	1	1
Other	3	3
Education		
High School Diploma	41	37
2-Year College Degree	40	36
4-Year College Degree	26	23
Graduate Degree	3	3
Grades		
“A”	12	11
“B”	76	68
“C”	17	15
“D-F”	2	2
Depart. Training Involvement		
Yes	34	31

Note. Percentages are rounded to the nearest whole percent.

Seventy-seven participants (69.4%) were assigned to patrol, 31 (27.9%) were assigned to specialized units, and 1 (.9%) was assigned to administrative duties. Two cases (1.8%) did not contain this information.

Forty-one of the participants (36.9%) had a high school diploma, 40 (36%) had a 2-year college degree, 26 (23.4%) had a 4-year college degree, and 3 (2.7%) had a graduate degree. One case (.9%) did not contain this information.

Twelve participants (10.8%) reported earning "A"s on average during previous schooling, 76 (68.5%) reported earning "B"s, 17 (15.3%) reported earning "C"s, and 2 (1.8%) reported earning "D"s or "F"s most often. Two (1.8%) cases did not contain this information.

Thirty-four participants (30.6%) reported having some involvement with departmental training while 55 (49.5%) claimed to have no involvement in such training. Three cases (2.7%) did not have legible answers or were not filled out correctly, and 19 (17.1%) cases did not contain this information.

Study # 1 and Study # 2 Combined

Due to the many changes in the demographic items between the two studies, it is difficult to calculate accurate total percentages for some of the demographics across the two studies. Despite this, and because both Study # 1 and Study # 2 are parts of an over-arching study, where possible the demographic numbers and percentages have been calculated and a composite profile is provided below (See Table 3).

Of the 161 total participants in Study # 1 and Study # 2, 126 participants were male (78.2%) and 32 were female (19.8%). Fifty-nine participants (36.6%) were between the ages of 21-30, 48 (29.8%) were between the ages of 31-40, 37 (22.9%) were between the ages of 41-50, and 13 (8%) were 51 years of age or older. When asked to indicate rank, 137 participants (85%)

reported being officers (standard, non-supervisory rank), 21 (13%) reported being Sergeants (shift supervisors), and 1 (.6%) reported being a Lieutenant (District Commander). Sixty-five participants (40.3%) were Black/African American, 54 participants (33%) were White/Caucasian, 14 (8.7%) were Hispanic/Latino, 3 (1.8%) were Asian, 2 (1.2%) were Native North American, and 5 (3.1%) indicated "other."

Table 3.

Study # 1 and Study # 2 Cumulative Demographics.

Demographic	Number of Participants	Population Percentage
Gender		
Male	126	78
Female	32	20
Age		
21-30	59	37
31-40	48	31
41-50	37	30
>51	13	8
Years On		
0-5	-	-
6-10	-	-
11-15	14	9
>16	-	-
Rank		
Officer	137	80
Sergeant	21	13
Lieutenant or Above	1	1
Assignment		
Patrol	119	74
Special Unit	33	20
Admin.	4	2
Race/Ethnicity		
Black/African American	65	40
White/Caucasian	54	33
Hispanic/Latino	14	9
Asian	3	2
Native North American	2	1
Other	5	3

Note. Percentages were rounded to the nearest whole percent.

One-hundred and nineteen participants (73.9%) were assigned to patrol, 33 (20.5%) were assigned to specialized units, and 4 (2.5%) were assigned to administrative duties.

Descriptive Data

The descriptive statistics of the data from the five scales are provided below in Table 4. To have a clear understanding of the information contained in this table, it is important to note that the total number of items for each scale differed and consequently, the total possible score varied as well. The mean, median, and mode are based on the different possible total scores, and in order to provide a comparative measure, the aggregate percentages are included.

Scale Reliability

Scale reliability results will be provided in this section. Each scale will be addressed beginning with a brief description of the scale, followed by the initial reliability indexes from the pilot study (Study # 1), a description and explanation of any revisions made to the scale, and the final reliability index for the scale as found in the results of Study # 2. The scales to be considered include resistance, resentment, disinterest, overconfidence, perceived social norms, and openness. The reliability information for these scales appears in Table 5 (Study # 1), and Table 6 (Study # 2).

Resistance

The resistance scale was originally divided into two a priori subscales – active resistance and passive resistance, because the researcher predicted that there might be an internal consistency problem. However, the data for Study # 1 did not support this prediction and the two subscales were combined into one full-spectrum resistance scale. The data from Study # 2 also indicated a high level of internal consistency between the items of both proposed subscales and, in the final analysis, these two subscales appear to be only one scale.

Table 4.

Descriptive Statistics for Study # 2

Statistic	Resistance	Resentment	Disinterest	Overconfidence	Perceived Norms
n	103	107	109	109	110
Mean	26.708	14.691	18.935	15.082	16.454
Median	28	14	18	15	16
Mode	28	14	17	14	16
St. Dev.	5.389	3.543	3.707	3.347	2.764
Skewness	-.161	.131	-.016	-.014	-.212
Kurtosis	-.189	.014	.053	.042	.439
Percentage	50	53	68	53	57

Note: Percentages rounded to the nearest whole percent.

The resistance scale used in Version A of the instrument for Study # 1 contained 16 items. The coefficient alpha for the full-spectrum resistance scale was $\alpha = .894$. For each individual item within a scale, and both corrected item-total coefficients, as well as "if item deleted" alpha coefficients were examined. One item was removed due to vague wording that could possibly be open to multiple interpretations. One item was removed from the scale in Version B due to an error on the part of the researcher. The latter was an item with strong coefficients but due to the strength of the scale and the high number of items (16) the error did not affect the results. For item deletions and modifications see Appendix G. After these revisions,

Table 5.

Scale Reliability for Study # 1.

Scale	Number of Items	Alpha
Resistance (active and passive)	14	.893
Resentment	7	.891
Disinterest	7	.894
Perceived Social Norms	7	.796
Overconfidence	7	.803
Openness	7	.667

the reliability coefficient for the resistance scale was α = .893. After revisions were made and Version B of the instrument was administered in Study # 2, the total number of items in the resistance scale was 14 and the coefficient alpha was α = .877. In Study # 2, no individual items in the resistance scale had corrected item-total coefficients ≤ .30.

Resentment

The resentment scale used in Version A of the instrument for Study # 1 contained eight items. The coefficient Alpha for the resentment scale was α = .880. Corrected item-total coefficients were examined for each individual item as well as the "if item deleted" coefficient. The "if item deleted" coefficients indicated that the alpha coefficient would be strengthened if one item were deleted. One item was deleted (see Appendix G) and the reliability coefficient for the resentment scale was α = .891. When Version B of the instrument was administered in Study # 2, the total number of items in the resentment scale was 7 and the coefficient alpha was α = .871. In study # 2, no individual items were removed based on the analysis of the corrected item-total coefficients and the "if item deleted" coefficients.

Disinterest

The disinterest scale used in Version A of the instrument for Study # 1 contained eight items. The coefficient alpha for the disinterest scale was α = .887. Corrected item-total coefficients and "if item deleted" coefficients were examined for each individual item and one item was removed to strengthen the coefficient alpha. The reliability coefficient for the seven items was α = .894. After revisions were made and Version B of the instrument was administered in Study # 2, the total number of items in the disinterest scale was seven and the coefficient alpha was α = .864. In Study # 2, no individual items were modified or deleted.

Overconfidence

The overconfidence scale used in Version A of the instrument for Study # 1 contained eight items. The initial coefficient Alpha for the overconfidence scale was α = .795. Corrected item-total coefficients and "if item deleted" coefficients were examined for each individual item and one item was removed in order to strengthen the alpha coefficient to α = .803 (see Appendix G). After revisions were made and Version B of the instrument was administered in Study # 2, the total number of items for the overconfidence scale was seven and the coefficient alpha was α = .832. Again, corrected item-total, and "if item deleted" coefficients were examined for each individual items. No items were modified or removed in Study # 2.

Perceived Social Norms

The perceived social norms scale used in Version A of the instrument for Study # 1 contained eight items. The coefficient alpha for the perceived social norms scale was α = .796. Corrected item-total coefficients and "if item deleted" coefficients were examined for each individual item and one item was removed due to a low corrected item-total coefficient (.276). After this revision, the total number of items in the perceived social norms scale was seven and the coefficient alpha for the revised scale was α = .812. The initial coefficient alpha in Study # 2 was α = .695. In study # 2, corrected item-total coefficients and "if item deleted" coefficients were examined for each individual item, and while there were four items having low corrected item-total coefficients (.337, .381, .296, .308), no changes were made because none effectively strengthened the reliability coefficient. Additionally, there were too few items to permit the deletion of multiple items. No further modifications or deletions were made and the final scale reliability coefficient for Study # 2 remained at α = .695.

Table 6.

Scale Reliability for Study # 2.

Scale	Number of Items	Alpha
Resistance (active and passive)	14	.877
Resentment	7	.871
Disinterest	8	.864
Perceived Social Norms	7	.695
Overconfidence	7	.832
Openness	12	.783

Openness

The openness scale used in Version A of the instrument for Study # 1 contained eight items. The initial coefficient Alpha for the openness scale was $\alpha = .600$. Corrected item-total coefficients and "if item deleted" coefficients were examined for each individual item. Due to the low reliability coefficient, several low corrected item-coefficients, and the limited number of items in the "short-form" scale, the researcher, following consultation with the scales designer (Lounsbury & Gibson, 2007), determined to use the longer version of the openness scale for Version B of the instrument in Study # 2.

The full version of the Personal Style Inventory (Lounsbury and Gibson, 2007) was used in Version B of the instrument in Study # 2, and contained 15 items. In Study # 2, the initial alpha coefficient was $\alpha = .751$. As in Study # 1, corrected item-total coefficients and "if item deleted" coefficients were examined for each individual item, and two items were removed. After removing these items, the total number of items was 13 and the alpha coefficient was $\alpha = .783$.

Summary of Scale Reliability

To summarize the results of the internal-consistency reliability analysis, of the five original scales tested in Study # 1 and Study # 2, the final Resistance scale had an alpha of α = .887, the final Resentment scale had an alpha of α = .871, the final Disinterest scale had an alpha of α = .864, the final Overconfidence scale had an alpha of α = .832, and the final Perceived Social Norms scale had an alpha of α = .695 (See Table 6).

Scale Correlations

In this section, intra-correlations will be provided for each of the hypothesized factors included in the study. Each of the correlations will be provided (see Table 6), and for all correlations above .7, both the standard correlation coefficients as well as coefficients corrected for attenuation (projected measurement error) will be provided. Because the openness scale is not an original scale and was used in this study for validation purposes alone, all correlations with the Openness scale will be addressed in the validation section of this chapter.

Resistance

In Study # 1, the Resistance scale correlated positively with the Resentment scale (r = .772, p = .000). Corrected for attenuation, this correlation is $r_{corrected}$ = .884. Resistance correlated positively with Disinterest (r = .651, p = .000). Resistance correlated positively with Overconfidence (r = .711, p = .000). Corrected for attenuation, this correlation is $r_{corrected}$ = .832. Resistance correlated positively with Perceived Social Norms (r = .641, p = .000).

Resentment

In Study # 2, the resentment scale correlated positively with the Resistance scale (r = .772, p = .000). Corrected for attenuation, this correlation is $r_{corrected}$ = .884.

Table 7.

Scale Intra-correlations from Study # 2.

	Resistance	Disinterest	Resentment	Overconfidence	P. Norms	Openness
Resistance	-	.651	.772	.711	.641	-.278
Disinterest		-	.748	.646	.698	-.249
Resentment			-	.624	.664	-.168*
Overconfidence				-	.677	-.230
P. Norms					-	-.012*
Openness						-

*p > .05

Resentment correlated positively with Disinterest (r = .748, p = .000). Corrected for attenuation, this correlation is $r_{corrected}$ = .863. Resentment correlated positively with Overconfidence (r = .624, p = .000). Resentment correlated positively with Perceived Social Norms (r = .641, p = .000).

Disinterest

In Study # 2, the Disinterest scale correlated positively with Resentment (r = .748, p = .000). Corrected for attenuation, this correlation is $r_{corrected}$ = .863. Disinterest correlated positively with Resistance (r = .651, p = .000). Disinterest correlated positively with Overconfidence (r = .646, p = .000). Disinterest correlated positively with Perceived Social Norms (r = .698, p = .000).

Overconfidence

In Study # 2, the Overconfidence scale correlated positively with the Resentment scale (r = .624, p = .000). Overconfidence correlated positively with Disinterest (r = .646, p = .000). Overconfidence correlated positively with Resistance (r = .711, p = .000). Corrected for

attenuation, this correlation is $r_{corrected} = .832$. Overconfidence correlated positively with Perceived Social Norms (r = .677, p = .000).

Perceived Social Norms

In Study # 2, the Perceived Social Norms scale correlated positively with the Resentment scale (r = .664, p = .000). Perceived Social Norms correlated positively with Disinterest (r = .698, p = .000). Perceived Social Norms correlated with Overconfidence (r = .677, p = .000). Perceived Social Norms correlated with Resistance (r = .641, p = .000).

Summary of Scale Correlations

In summary, Resistance correlated significantly with Resentment (r = .772, p = .000), Disinterest (r = .651 p = .000), Overconfidence (r = .711, p = .000), and Perceived Social Norms (r = .641, p = .000). These findings are consistent with Hypotheses 1, 2, 3, and 5. As previously mentioned (Chapter I, page 25), Hypothesis 4 was unanswerable by the methods utilized in this study. These hypotheses are stated below, one at a time, with corresponding results.

1. Hypothesis 1: Overconfidence (presumption) in learners will be positively related to resistance behaviors and cognitions. (r = .711, p = .000).
2. Hypothesis 2: Disinterest of learners will be positively related to resistance behaviors and cognitions. (r = .651, p = .000).
3. Hypothesis 3: Resentment in learners will be positively related to resistance behaviors and cognitions. (r = .772, p = .000).
4. Hypothesis 5: Socially normative negative views of in-service training as perceived by learners will be positively related to resistance behaviors and cognitions. (r = .772, p = .000).

Scale Validity

As discussed in Chapter III, there were several different ways in which the researcher attempted to validate this instrument. They are briefly summarized in the following paragraphs. Before going into detail, it is important to note that, while some of the validation indexes were examined in Study # 1, this study was primarily a pilot study used for purposes of establishing reliable scale items. Additionally, some validation methods were not used in Study # 1. Because of this, only validation results from Study # 2 are included in this section. In this study, and in the construction of the proposed instrument, content validity is addressed in three ways. It was with an eye on content validity that the researcher has designed the items in the five scales of this instrument by (a) consulting the extant professional and academic literature and related theoretical premises, (b) engaging in consistent consultation with a psychologist and psychometrician at the University of Tennessee, and (c) drawing on over ten years of personal experience of teaching learners in mandatory training/learning contexts. In this study, construct validity has been addressed in three specific ways. First, construct validity was addressed using confirmatory factor analysis (CFA), which was used to provide an indicator of "goodness of fit" for the model, ensuring that the proposed model, and subsequently, the related instrument, is best fit by the data. A preliminary CFA model was identified based on theory only (see Appendix H). The results of the CFA will be presented in subsequent sections of this chapter.

Second, known-group validation was checked by including items from a scale measuring openness (Lounsbury & Gibson, 2007), one trait using Big Five Models (Costa & McCrae, 1987). Known-group validation can be tested by "predicting and verifying differences on a construct as a function of group membership when there is a high degree of a priori consensus about between-group differences on levels of the construct" (Lounsbury et al., 2006, p. 140). In

this case, it was expected that one's level of resistance to learning would be negatively related to one's level of openness, or intellectual curiosity. It was hypothesized that, in this case, higher levels of resistance behaviors and cognitions will be negatively related to levels of openness.

To further develop known-group validity, a set of hypotheses was developed using the data collected from one of the demographic questions – "How many years have you been a police officer?" The following results were expected:

1. Those who have been police officers longer will have higher levels of resistance behaviors and cognitions.
2. Those who have been police officers longer will have higher levels of resentment.
3. Those who have been police officers longer will have higher levels of overconfidence.
4. Those who have been police officers longer will have higher levels of disinterest.

Based on the above, it is construct validity that will be addressed in this section of the results. The results that involve the openness scale and speak to known-group validation will be provided first, followed by additional known-group validity results using items included in the demographic section of the instrument. The results of the CFA analysis will then be provided, followed lastly, by results related to discriminant validity.

Known-Group Validity: The Openness Scale

All five independent, original scales were checked for correlations with the openness scale (Lounsbury & Gibson, 2007), with the theory-based expectation that there would be significant negative relationships between each of the independent scales and the openness scale. Simply put, it was expected that those who were more "open" to new experiences would be less resistant. Additionally, several different demographic items were used to indicate known-group

validation with each of the scales. The openness scale and the various demographic correlations are shown below.

In Study # 2, the resistance scale was negatively correlated to the openness scale, having a correlation of r = -.278 (p = .006). The Resentment scale was negatively correlated with the openness scale, having a correlation of r = -.168 (p = .096), but this was not significant at the .05 level of convention. The Disinterest scale was negatively correlated with the openness scale, having a correlation of r = -.249 (p = .012). The Overconfidence scale was negatively correlated with the openness scale, having a correlation of r = -.230 (p = .021). The Perceived Social Norms scale was not significantly related to the openness scale (r = -.012, p = .908).

Known-Group Validity: Demographic Items

The following section provides correlations between data obtained from the various scales and the many demographic items included in Version B of the instrument. There are six demographic items referenced here, which are as follows: the number of years each participant has been a police officer; the age of each participant; the rank of each participant; the duty assignment of each participant; each participant's self-reported tendency to "sign up" for new training opportunities just for the sake of learning something new; and each participant's self-reported tendency to, over their own lifetime, struggle with boredom. These correlations are provided below and are contained in Table 10. Table 10 is included in the *Discriminant Validity* section because of the utility of the demographic items for indicating discriminant validity.

Resistance. According to the results of Study # 2, there was no significant relationship between how long a participant had been a police officer and how resistant that participant was (r = .181, p = .068). There was no significant relationship between how old a participant was and his or her level of resistance (r = .117, p = .242). There was no significant relationship between a

participant's rank and his or her level of resistance (r = .040, p = .688). There was no significant relationship between a participant's duty assignment and his or her level of resistance (r = .114, p = .257). There was no significant relationship between the self-reported tendency of a participant to sign up for new training with the mere intent to learn something new (r = -.183, p = .067). Lastly, and conversely, there was a significant positive relationship between a participant's self-reported life-long struggle with boredom (r = .331, p = .001).

Resentment. According to the results of Study # 2, there was no significant relationship between how long a participant had been a police officer and how resentful that participant was (r = .171, p = .079). There was no significant relationship between how old a participant was and his or her level of resentment (r = .089, p = .371). There was no significant relationship between a participant's rank and his or her level of resentment (r = .019, p = .850). There was a significant positive relationship between a participant's duty assignment and his or her level of resentment (r = .202, p = .039), indicating more resentment reported by those involved in specialized units or administrative positions. There was a significant negative relationship between the self-reported tendency of a participant to sign up for available training opportunities with the intent to merely learn something new, and his or her level of resentment (r = -.264, p = .005). Lastly, there was a positive relationship between a participant's self-reported life-long struggle with boredom, and his or her level of resentment (r = .232, p = .016).

*Disinterest. A*ccording to the results of Study # 2, there was no significant relationship between how long a participant had been a police officer and how disinterested that participant was (r = .115, p = .238). There was no significant relationship between how old a participant was and his or her level of disinterest (r = .007, p = .939). There was no significant relationship between a participant's rank and his or her level of disinterest (r = .015, p = .875). There was no

significant relationship between a participant's duty assignment and his or her level of disinterest (r = .168, p = .084), indicating more resentment reported by those involved in specialized units or administrative positions. There was a significant negative relationship between the self-reported tendency of a participant to sign up for available training opportunities with the intent to merely learn something new, and his or her level of disinterest (r = -.221, p = .022). Lastly, there was a significant negative relationship between a participant's self-reported life-long struggle with boredom, and his or her level of disinterest (r = -.221, p = .022).

*Overconfidence. A*ccording to the results of Study # 2, there was a significant positive relationship between how long a participant had been a police officer and how overconfident that participant was (r = .305, p = .001). There was a significant positive relationship between how old a participant was and his or her level of overconfidence (r = .228, p = 019). There was no significant relationship between a participant's rank and his or her level of overconfidence (r = .028, p = .776). There was a significant positive relationship between a participant's duty assignment and his or her level of overconfidence (r = .190, p = .050), indicating more overconfidence reported by those involved in specialized units or administrative positions. There was a significant negative relationship between the self-reported tendency of a participant to sign up for available training opportunities with the intent to merely learn something new and his or her level of overconfidence (r = -.267, p = .005). Lastly, there was a significant positive relationship between a participant's self-reported life-long struggle with boredom and his or her level of overconfidence (r = .204, p = .033).

*Perceived Social Norms. A*ccording to the results of Study # 2, there was no significant relationship between how long a participant had been a police officer and the participant's negative perceived social norms related to training (r = .022 p = .818). There was no significant

relationship between how old a participant was and his or her level of disinterest (r = -.109, p = .264). There was no significant relationship between a participant's rank and his or her negative perceived social norms related to training (r = -.003, p = .976). There was a significant relationship between a participant's duty assignment and his or her negative perceived social norms related to training (r = .208, p = .030), indicating more negative perceived social norms related to training reported by those involved in specialized units or administrative positions. There was no significant relationship between the self-reported tendency of a participant to sign up for available training opportunities with the intent to merely learn something new and his or her level of disinterest (r = -.221, p = .022). Lastly, there was no significant relationship between a participant's self-reported life-long struggle with boredom and his or her negative perceived social norms related to training (r = .123, p = .201).

Convergent Validity: Confirmatory Factor Analysis

The structural equation modeling (SEM) method of confirmatory factor analysis (CFA) was used in this study. There are many different goodness-of-fit measures, and there is some disagreement in the literature regarding which measure(s) to report when conducting CFA. Following the recommendations of Garson (2009), the following three measures are reported below: model of chi squared (CMIN/DF); the root mean square error of approximation (RMSEA); and the comparative fit index (CFI), as a baseline fit measure (see Table 8). The CMIN/DF = 2.039, the RMSEA = .097, and the CFI = .657. Additionally, the regression weights (structural coefficients) for individual scale items are provided (see Table 9).

Table 8.

Model Fit Measures

CMIN/DF	RMSEA	CFI
2.039	.097	.657

Discriminant Validity: Demographic Items

Discriminant validity, defined as "the degree to which a construct is discriminable (e.g., uncorrelated) from, and nonredundant with, other constructs" (Lounsbury, 2005, p. 139) is necessary in this study due to the very high intra-correlations between the study constructs. These high correlations statistically seem to indicate the possibility that several of the scales may be measuring the same underlying construct. The need for discriminant validity will be addressed at length in the discussion in Chapter V, but results which can be used to indicate the potential for discriminant scales (although failing to provide sufficient support at the time of this study) are provided below in

Conclusion

In this chapter, the results of both Study # 1 and Study # 2 have been provided, including the reliability coefficients for all original scales, correlations between scales, and multiple indexes to support the validity of the multi-dimensional instrument designed in this research. These results will be discussed at length in the next chapter, Chapter V, and the many implications of these results for educational research and practice will be analyzed.

Table 9.

Structural Coefficients

Question	Scale	Estimate	P
Q09	RESISTMENT	1.000	
Q14	RESISTMENT	.692	.001
Q19	RESISTMENT	1.173	***
Q21	RESISTMENT	1.181	***
Q25	RESISTMENT	1.007	***
Q28	RESISTMENT	.561	***
Q31	RESISTMENT	.855	***
Q38	RESISTMENT	.593	.001
Q41	RESISTMENT	1.528	***
Q43	RESISTMENT	1.051	***
Q47	RESISTMENT	.905	***
Q50	RESISTMENT	1.020	***
Q53	RESISTMENT	1.355	***
Q58	RESISTMENT	1.449	***
Q03	RESENTMENT	1.000	
Q06	RESENTMENT	.852	***
RQ23	RESENTMENT	.850	***
Q35	RESENTMENT	1.163	***
RQ44	RESENTMENT	.640	***
Q52	RESENTMENT	1.002	***
Q54	RESENTMENT	.863	***
RQ01	DINTEREST	1.000	
RQ08	DINTEREST	1.136	***
Q12	DINTEREST	1.074	***
Q24	DINTEREST	.851	***
RQ29	DINTEREST	.760	***
Q30	DINTEREST	.898	***
RQ49	DINTEREST	.929	***
RQ55	DINTEREST	.901	***
Q05	P. SOCIAL NORMS	1.000	
Q22	P. SOCIAL NORMS	.948	***
Q26	P. SOCIAL NORMS	1.034	***
Q34	P. SOCIAL NORMS	.482	.008
RQ32	P. SOCIAL NORMS	.515	.004
Q36	P. SOCIAL NORMS	.670	***
Q57	P. SOCIAL NORMS	1.142	***
Q11	OVERCONFIDENCE	1.000	
Q15	OVERCONFIDENCE	1.108	***
RQ17	OVERCONFIDENCE	1.097	***
RQ20	OVERCONFIDENCE	1.325	***
Q42	OVERCONFIDENCE	1.008	***
Q46	OVERCONFIDENCE	1.321	***
Q56	OVERCONFIDENCE	1.295	***

**** Below the .001 level.*

Table 10.

Discriminant Validity Correlations

	Years On	**Age**	**Assignment**	**Training Op.**	**Trait Boredom**	**Openness**
Overconfidence	.305**	.228*	.190*	-.267**	.204*	-.230*
Resistance	.181	.117	.114	-.183	.331**	-.278**
Resentment	.171	.089	.202*	-.264**	.232*	-.168
Disinterest	.115	-.007	.168	-.221*	.091	-.249**
P. Social Norms	.022	-.109	.208*	-.043	.123	-.012
Openness	-.177	-.263**	.209*	.464**	-.112	-

*p ≤ .05 **p ≤. 01

CHAPTER V

DISCUSSION

Chapters I-III provided the purpose of the study, research objectives, hypotheses, a comprehensive review of the literature on resistance to learning, and the methods employed in this study. Chapter IV provided the results of all of the various statistical tests and analyses conducted with the collected data, and this chapter, Chapter V, contains a discussion of the results of each of the tests and analyses, along with an analysis of how the results address the study hypotheses and objectives. Chapter V will conclude with a short discussion of the limitations of the study along with implications and recommendations for future research.

As stated in Chapter I (pp. 11-12):

> The purpose of the study is to design a reliable and valid, multi-dimensional instrument that will measure, and therefore identify (a) the level of learning resistance behaviors and cognitions on an individual and aggregate basis within an organization in the mandatory training setting, and (b) measure/identify in rank order the levels of boredom, resentment, planned behavior, and overconfidence, also on an individual as well as aggregate level, so as to identify which of the causal factors appear to have the strongest affects on the resistance behaviors and cognitions.

To achieve this purpose, four research objectives were identified, and five hypotheses were stated. In this chapter, the results will be discussed in terms of each of these study objectives, with discussion regarding the hypotheses falling under the appropriate research objective.

An Overview of Method

This study involved the construction of a multi-scale instrument that would measure resistance to learning cognitions and behaviors, and four hypothetically related factors – resentment, disinterest, overconfidence, and perceived social norms. All five scales are tested for

reliability using internal consistency factor analysis. Reliability testing was conducted in a pilot study, Study # 1, during which an initial version of the instrument, Version A, was issued to a cluster sample of 52 participants who were police officers in a large urban police force in the eastern United States. During the course of Study # 1, revisions were made to the instrument and reliable coefficient alphas were obtained for all five scales.

In a second study, Study # 2, a revised version of the instrument, Version B, was administered to the rest of the population of that same police department in an effort to test the validity of the scales. In both studies, an independent external scale for the psychological trait Openness was included in the study to provide known-group validation based on a nomological network. Various demographic items were also used to validate the scales of the study. The following sections provide discussion based on the findings of these two studies. For a complete explanation and description of study methods, see Chapter IV.

Discussion of Results

The discussion of results will be organized under five subheadings. *Research Objectives* will present a discussion of the study findings under the framework of the original research objectives of the study. *Unexpected Outcomes* will provide analysis of a few unexpected but interesting findings. *Potential for Harm* is a brief caveat that acknowledges the potential dangers of using psychometric instruments to measure the constructs contained in this study. *Implications of the Study* addresses the complications of the study and provides alternate sets of potential beneficial implications, and the *Conclusion of Findings* summarizes the findings discussion and provides a transition to the final segment of the chapter in which future research implications and overarching concluding remarks are provided.

Research Objectives

In this section the results from both Study # 1 and Study # 2 will be discussed in relationship to the four research objectives. Each objective will be stated and followed by an analysis of the related results.

Objective # 1

> ***A reliable measure of learning resistance behaviors and cognitions will be developed along with a reliable measure of four related causal factors – overconfidence, disinterest, resentment, and perceived social norms. Reliability will be established for all five constructs and it is expected that each will indicate internal consistency, having a Cronbach's alpha of at least .80.***

The reliability analysis indicated reliable scales for four out of the total five scales. Resistance, Disinterest, Resentment, and Overconfidence all were reliable at or above the conventionally-approved alpha coefficient of $\alpha = .75$ (Lounsbury, 2006). In all but one case, the modifications made after viewing the results of Study # 1 were sufficient to provide a solid coefficient alpha in Study # 2 without any further modifications. That is to say that in every scale except Perceived Social Norms, coefficient alphas were .80 or above in Study # 2 without dropping or modifying any further items. Coefficient alphas remained almost the same for these scales when the sample was increased by over 100% in Study # 2.

The scale for Perceived Social Norms was initially weak in Study # 2 ($\alpha = .695$), the alpha being below the conventional level of acceptance and there were (a) too few total items to manipulate, (b) too many items with corrected-item totals $\leq .3$, and (c) no effective "if item deleted" steps available. These factors resulted in a scale that is not reliable to a satisfactory degree. Looking at the effective adjustments that were made in Study # 1, it is probable that the

scale could have been reliable had it contained more items initially. Theory strongly supports the notion of perceived social norms and their effects on behavior (Ajzen, 1988, 1991; Fishbein & Ajzen, 2005), and in future studies, the researcher will substantially increase the number of items for several rounds of reliability testing. In light of the fact that an unreliable instrument cannot be valid (Creswell, 2003), one must accept the correlations between the other scales in this study and the perceived social norms scale with the proverbial "grain of salt," but early indications from this study seem to indicate the potential of the scale to be modified and made reliable in future studies.

Objective # 2

The instrument will be validated using multiple forms of validating criteria including construct validity, criterion-related validity, and concurrent validity.

As previously noted, validation is a lengthy procedure that is measured in degrees, rather than a one-time action after which a given threshold is met (Nunnally & Bernstein, 1994). Because the instrument contained six scales, including one non-original scale for validation purposes, it proved difficult to attach multiple additional scales and items for validation purposes. Adding to this difficulty was the context in which the instrument was being administered and tested – a series of 15-minute roll call meetings. This 15-minute window was prohibitive of additional items which might have provided greater degrees of validation for the five original scales. This will be addressed more fully in the limitations section of this chapter, but it is included here because it is an influential factor in examining the degree of validation that was achieved in this study.

Known-group validation. The openness scale, based on the Big Five trait theory of personality (Costa & McCrae, 1985) and designed by Lounsbury and Gibson (2007), was

included in the instrument to provide known-group validity for the primary scale, resistance behaviors and cognitions, because theory would lead one to expect that there would be a significant negative relationship between openness and resistance. A person with a significant level of openness described as "prone to seek out and engage in new: ideas, procedures, techniques, and experiences; inclined toward organization innovation, acquiring new KSA's on the job, *continuing education, professional development*, travel, cross-cultural activities, and temporary duty assignments (italics added)." (Lounsbury and Gibson, 2006, p. 5). Therefore, based on the definition of resistance provided in earlier sections of this document, it was expected that those who are more resistant to learning should be less open to new experiences. Theoretically, each of the other constructs would share the same negative relationship with openness. To a lesser extent, those with increased levels of resentment were expected to have lower levels of openness, those with increased levels of overconfidence were expected to have lower levels of openness, those with increased levels of disinterest were expected to have lower levels of openness, and those with negative perceptions of social norms pertaining to training programs were expected to have lower levels of openness.

The data confirmed these relationships with the resistance scale, the disinterest scale, and the overconfidence scale. There was a negative relationship between openness and both Perceived Social Norms, and Resentment, but in neither of these cases were the correlations statistically significant. This could reflect the low number of participants in the study, or could be explained in terms of some other theoretically-plausible aspects having to do with resentment and Perceived Social Norms.

In the case of Perceived Social Norms, the low coefficient alpha fails to establish scale reliability and, as was mentioned earlier in this chapter, while reliability does not automatically

indicate validity, an unreliable scale cannot be valid (Creswell, 2003). Because of this, any assessment of the validity of the Perceived Social Norms scales is premature and should be delayed until further data can be collected and analyzed.

In the case of Resentment, the nature of the relationship is less clear than in the case of Resistance, Overconfidence, and Disinterest. The distinction lies in the fact that the openness scale used in the study was not domain specific, instead measuring general levels of openness at large. If the resentment expressed by the participants was domain specific, being directed at the department, training programs, or some other facet of the highly specific context, then it would not seem reasonable to expect that these resentful participants were necessarily less open to new experiences outside the immediate domain in which resentment is felt.

There were other single-item demographic items that were used to establish scale validity. These items included (a) how long participants had been police officers, (b) participant's self-reported degree of struggle with boredom throughout his or her life, (c) participant's rank, (d) participant's age, (e) participant's level of education, (f) participant's self-report of average grades in previous school experience, (g) participant's involvement with departmental training, and (h) participant's self-reported tendency to seek out new training experiences for the purposes of learning in and of itself. While the significant negative correlation between openness and resistance did support validity of several of the scales, the data on correlations between the scales and individual demographic items were disappointing. It was expected that participants who had been police officers for longer periods of time would tend to be more resistant. This was not supported by the data. Rank also failed to correlate significantly with any of the scales. It is the researcher's view that sample size may have contributed to these non-significant relationships, but this will have to be investigated in future studies.

The remaining five demographic items (listed above) did correlate significantly and according to expectations, though not in every case with every scale (see Chapter IV). These are also discussed in more detail in the following section on discriminant validity.

Discriminant validity. Discriminant validity is "evaluated by the degree to which a construct is discriminable (e.g., uncorrelated) from, and nonredundant with, other constructs" (Lounsbury, 2005, p. 139). The very strong intra-correlations in this study indicate the need for additional validity in the form of discriminant validity. Garson (2009) claims that some researchers place the "cut-off" correlation at .85, believing that anything higher than that is too likely to be redundant scales, but also recognizes that there are more stringent methods (factor models, AVE method) and less stringent methods (criterion using correlations between a given scale and a specific criterion measure). Using the $\alpha \leq .85$, all five scales designed and tested in this study could be considered discriminant. When corrected for attenuation, two out of the five scales are above this cut-off point (resistance correlates to resentment, $r_{corrected} = .884$; resentment correlates to disinterest $r_{corrected} = .863$). However, given that correlations of r = .8 between two scales, each having a .8 level of reliability, when corrected for attenuation, result in a perfect correlation of .1, this seems an unreasonable standard.

Abelson (1995) references two styles of statistical argument: the *liberal style* and the *conservative style*. The liberal style is "oriented more toward exploration of data and discovery of possibly systematic effects," while the conservative style is reflective of a more "confirmatory attitude toward research results" (p. 15). The conservative style is used in situations where researchers are "willing to forego claims about marginal or unexpected findings in order to be more confident about the remaining claims (p. 15). Despite these general specifications, Abelson claims that most research falls in the middle of these two poles and, most importantly, "there is a

boundary in data interpretation beyond which formulas and quantitative decision procedures do not go, where judgment and style enter" (p. 15).

In the present research, it is the researcher's broad objective to develop, on one hand, multiple scales measuring constructs which, in most cases, have not been previously measured (exploratory), while on the other hand, attempt to confirm or disconfirm a series of hypotheses and test the psychometric properties of the measures (confirmatory). Taking Abelson's typology into account, it is argued that the theoretical framework strongly supports the discriminant nature of the five scales designed in this study. The statistical findings, however, despite some small indications of discrimination (see Table 10 in Chapter IV), point to a one-factor model, and therefore the possibility of a one-factor model must be taken seriously. The researcher acknowledges that there are statistical grounds on which some might dispute multiple factors, and wishes, in future studies, to more fully support discriminant validity empirically. In this chapter, both of these possibilities will be further discussed. The multiple-factor model will be discussed first because (a) it was the hypothesized model for this dissertation, (b) theory is supportive of multiple factors, and (c) the data that seem to indicate a single factor were obtained from just one pilot and one initial study, and therefore could be subject to error or sampling anomalies. In the section titled *Implications of the Study*, the one-factor model will be addressed more fully.

Conceptual Clarity

While additional steps need to be taken to increase the validity of these individual scales, there are a number of indicators in the results of this study that do suggest discrimination between the scales. This section addresses these indicators at length.

Several points will be discussed which provide theoretical and logical support for discriminant scales. Following these points, statistical indications will be addressed. At the outset, it must be noted that despite the arguments presented below, it is clear that further criterion-related empirical testing is required to satisfy discriminant validity of the scales included in this study.

First, it makes theoretical and logical sense that each of the four factors – overconfidence, perceived social norms, disinterest, and resentment – correlate highly with learning resistance. That is precisely what all four of the study hypotheses claim. Briefly stated hypotheses are (a) there will be a positive relationship between overconfidence and resistance, (b) there will be a positive relationship between negatively perceived social norms regarding training (MIR) and resistance, (c) there will be a positive relationship between disinterest and resistance, and (d) there will be a positive relationship between resentment and resistance. These hypotheses were developed based on the practitioner-related experience of the researcher as well as a comprehensive, multi-disciplinary review of the professional literature on learning resistance. So while the very high correlations might be problematic in terms of psychometric theory, and indicate the need for more validity testing, they were expected and could also indicate the accuracy of the theoretical relationships between these factors as represented in the literature.

Second, theory supports the potential connections between the four above-mentioned factors. While the relationships *among* the four constructs were *not* expected, there is theoretical and logical support for these intra-correlations. The following paragraphs analyze these possibilities one construct at a time.

In cases where a learner is highly resistant to learning, it is feasible that the learner may resent being coerced to participate in a given learning situation. If a learner is highly resistant to

learning, it is feasible that the learner may become, over time, overconfident. A highly resistant learner could potentially not be interested in workplace training. There has been clear recognition for the impact that the perception of social norms have on both decision making and behavior (Ajzen, 1988, 1991).

When a learner is highly resentful, it would be expected that the learner would resist learning, so long as that resentment was directed at some aspect of the workplace training system. If a learner is highly resentful of a given educational situation, it is quite possible that the learner may be overconfident of his or her need for the education being "offered." A highly resentful learner could feasibly become disinterested in the learning situation. This at first may seem incorrect since, in psychological terms, resentment can be thought of as a directional aroused state, while disinterest is, conversely, a lack of arousal or flat affective state. Defined these ways, it could arguably be impossible to be resentful of a person or object and be disinterested in that person or object at the same time. By looking more closely at the nuances of the constructs included in this study, however, that conflict dissolves. Consider a situation in which Person A is highly resentful of Person B, and therefore highly disinterested in what Person B has to say (teach). In other words, there is no theoretical conflict in this instance because Person A is not resentful of Person B *and* disinterested in Person B, rather Person A is disinterested in something different than that which he or she is resentful of. In this case, what might have seemed unlikely actually seems highly probable. Last, if a learner is highly resentful of a given educational situation, it is feasible for that learner to believe that others feel the same way.

In situations in which learner is highly overconfident, something Jarvis (1992) calls "presumption," in his or her existing knowledge and/or skills, it is likely that the learner will

resist learning. If a learner is highly overconfident, it is very likely that the learner will be disinterested in educational materials or settings. A highly overconfident learner could possibly believe others feel the same way as he or she does. In fact, in the case of overconfidence, its very nature may lead a researcher to believe that it is more probable than not that an overconfident learner might tend to engage in egocentric thought processes.

If a learner is highly disinterested in a learning situation, it is probable that the learner would resist learning in that setting. Likewise, if a learner is highly disinterested in a learning situation it could be expected that the learner may resent the requirement to engage in the training situation to begin with. If a learner is highly disinterested in a learning situation, it is feasible that the learner, if not already overconfident, might become so based on the assumptions implicit with disinterest. If a learner is highly disinterested in a learning situation, it is, as with all of the other constructs discussed so far, possible that the learner believes others feel the same way.

If a learner believes that most others have negative views about a given training situation, it is theoretically reasonable that the learner would resist learning in that training situation. If a learner believes that most others have negative views about a given training situation, it would be psychologically tenable that the learner would come to share the negative views and resent the training situation. If a learner believes that most others have negative views about a given training situation, it is possible that the learner may, to some extent, become more overconfident in his or her ability to succeed without the training. If a learner believes that most others have negative views about a given training situation, it is reasonable that the learner may be disinterested in the training. While one might immediately notice that the theoretical feasibility of these statements relating to perceived social norms might be less powerful than the

others, it should be noted that accordingly, the correlations between the perceived social norms scale and the other construct scales are much lower.

These points are significant because they provide the theoretical and conceptual basis for the interpretation of statistics. Machado and Silva (2007) stress the importance of theoretical and conceptual analysis by saying that:

> Through mental mutations and recombinations, as it were, scientists engender new hypotheses and theories and then subject them to two broad types of selection. One is based on the empirical adequacy of the scientist's conjectures, and the other on their conceptual clarity, explicitness, and consistency. Observations and experiments on the one hand, and conceptual analysis on the other hand, are filters through which all scientific hypotheses, models, and theories must pass (p. 679).

Statistical Indications

In terms of statistical indications, it can be observed that despite very high correlations among the resistance, resentment, disinterest, overconfidence, and perceived social norms scales, when correlated with several of the individual demographic items, statistically significant differences do appear. While the overconfidence scale significantly correlates with the number of years on the job, age, duty assignment, interest in training opportunities, and life-long boredom tendencies, no other scale correlates significantly with the number of years on or participant age. The resistance scale does not significantly correlate with any of the items except lifelong boredom, and the perceived social norms scale correlates significantly only with the reported duty-assignment. That these five scales seem to move together to a significant degree, there is some empirical indication of the potential for discriminant scales.

The previous sections provided some theoretical, logical, and statistical indications of the possibility of the discriminant nature of the five scales constructed and tested in this study

despite unusually high intra-correlations. The next section discusses the third study objective and the related confirmatory factor analysis results.

Objective # 3

Confirmatory Factor Analysis will be utilized to demonstrate four factors with constituent items loading onto the resistance behaviors and cognitions scale.

Given the high intra-correlations between the different factors of the proposed model, it was not surprising that the CFA results were not strong. Conversely, it was somewhat surprising that they were as strong as they were. The model of chi squared (CMIN/DF) value is considered an indicator of good fit if it is ≤ .3 (Kline, 1998). While it is true that some have suggested more restrictive limits (Ullman, 2001), others have suggested more relaxed limits, with some going as high as .5 (Schumacker & Lomax, 2004). Taking these ranges into consideration, the CMIN/DF for the model tested in this study was firmly within an acceptable range. In fact, one of the most restrictive limits suggested for this model fit index, ≤ .2 (discussed in Garson, 2009) was nearly met in the present case (CMIN/DF = 2.039).

Like most indices, there is some disagreement regarding the appropriate levels of the root mean square error of approximation (RMSEA). Garson (2009) describes convention as being ≤ .05 for a good fit, but ≤ .08 for an adequate fit. The RMSEA statistic for this model did not fall below either of these standards, but it was just over the .08 standard for adequate fit (RMSEA = .097).

By convention, a comparative fit index (CFI) of at least .90 is an indicator of a good model fit (Garson, 2009). The CFI for this model (CFI = .657) falls well below the conventional level. Looking at the three indicators, the hypothesized model showed a good fit with one, just outside the “adequate” cut-off for the second, and well below the third index convention. Taking

all three fit indicators together, one would have to admit to a less-than-adequate fit for the model, based on CFA. Though many of the indexes overestimate goodness of fit when analyzing data drawn from a sample size of less than 200 (Garson, 2009), both RMSEA and CFI are more sensitive to smaller samples (Fan, Thompson, and Wang, 1999).

While the regression weights for individual item factor loadings were all highly significant, these ratings must be viewed in a tentative way because strong regression weights (path weights) are meaningful only in instances where there is a reasonably good model fit. SEM CFA measures the goodness of fit for a model but stops short of indicating whether there are much better fits. There are some indices available (Modification Index, MI in AMOS) to assist with model trimming, missing data prohibited the researcher from utilizing those indices.

Noteworthy in the examination of these CFA results, is that fit indices are relevant to progress in the field (Garson, 2009). Simply put, when studying a previously unexplored area, as in the case of the present study, a model fit coefficient that fails to meet the recommended or conventional level could be considered meaningful simply because it is the most reliable model to date in the field of study. In this case, one good fit, one near miss for adequate fit, and strong item regression weights could be considered indicative of a marginal level of success for one study with a less than optimal sample size.

Finally, it is quite possible that the high level of intra-correlation among the five scales could have a noticeably negative effect on the SEM CFA analysis. While the researcher remains optimistic of five distinct scales, as discussed in previous sections of this chapter, there are aspects that need to be further explored, the potential for collinearity being among them. Additionally, the one-factor model (i.e. the 37 item combined resistance scale) would most likely render different CFA results. This and other potentialities will be addressed in future studies.

Objective # 4

A model of learning resistance in mandatory training contexts will be validated through the validation of the 4FLEI.

Given that validated instruments reflect valid nomological networks (Messick, 1989), a validated instrument reflects some level of validity for the model upon which it is based. In that respect, the level of validation established for the instrument in this study does afford the hypothesized model (see Figure 1) a comparable level of validity. The degree of validity indicated by this study is limited however, and it would be an overstatement to claim that the hypothesized model is fully validated. Clearly the findings in this study indicate a relationship exists between the four factors (resentment, overconfidence, disinterest, and perceived social norms) and resistance, but it is also clear that a relationship exists among these four factors, and that relationship is not clearly elucidated by the results of this study. Demonstrating further discriminant validity between the individual scales will increase the validity of the model greatly. In light of the very high intra-correlations, a more accurate model would include correlations between the four constructs – resentment, disinterest, overconfidence, and perceived social norms (see Figure 2)

Unexpected Outcomes

All of the general findings of the study were discussed as arranged under the research objective to which they most closely corresponded. This section provides a brief mention of a few findings that the researcher found surprising and particularly interesting. Three such findings are mentioned here: (a) women were significantly more resistant than were men, (b) women were significantly more resentful toward the workplace educational context than men, and (c) higher rank, which in the context of this population was indicative of more administrative work,

was significantly related to higher levels of resentment but not resistance behaviors and cognitions.

In examining the gender-related findings, one must keep in mind the low number of women in the study (16% in Study # 1 and 22% in Study # 2). The substantially lower number of females in this study seems to reflect the gender distribution in U.S. law enforcement, which in 2004 was as low as 12% (Felperin, 2004). Still, the correlations are strong and highly significant and shouldn't be ignored. The researcher was unable to find gender related studies on learning resistance in the literature that provided any theoretical support for the gender differences and the researcher has no clear hypotheses regarding the nature of these differences. Certainly it could be a sample-specific nuance, or perhaps a domain specific (law enforcement) dynamic. This is something that should be examined and watched closely in future studies. It is possible that gender acts as a mediator or moderator for learning resistance, but this is merely conjecture and will require further study.

Also interesting is the finding that those with higher rank were more likely to express resentment. Equally interesting is that despite being so highly correlated, those with higher rank, while expressing more resentment, did not express significantly higher levels of resistance. This also could be domain specific. One plausible explanation is that higher rank affords employees a clearer view of the internal inconsistencies of the organization's administration and operation. Put another way, it may be different to suspect that the organization or institution is poorly run, misdirected, or simply engaged in a futile effort, than to actually *know* that this is the case. While those in leadership positions seem to resent organizationally required educational experiences, they seem for some reason, perhaps a sense of loyalty or a feeling of necessity, not to resist accordingly. If so, this would be similar to cognitive dissonance studies in which participants

changed their actions to more closely align with their current roles (Arronson, Fried, and Stone, 1990; Dickerson, Thibodeau, Aronson, and Miller, 1992). Perhaps it is the need to promote and enforce the educational situations that causes the supervisor to become resentful. This scenario, if accurate, would indicate that what may be a normal relationship (maybe even a cause) between a given factor and learning resistance, other environmental, and possibly personal factors can interact with and mitigate the natural tendency to resist learning. If this idea were developed and empirically supported, it would be invaluable because it would provide insight into the effect leadership has in a given organization but also would provide information about how to position resistance employees in ways that would potentially reduce resistance. Certainly there is an ethical minefield to navigate in this event, because these "positions" might actually generate increased resentment in the employee. Increased resentment would be harmful to the organization but also unhealthy and unpleasant for the employee.

Potential for Harm

Before addressing the significance of the study, it must be recognized that there is potential for the instrument designed in this study to be used in harmful and/or unethical ways. Should the instrument be administered in a non-anonymous manner, individual employees could be punished on some ways, or inhibited from future success (i.e. promotion and pay increases) based on his or her score. While a non-anonymous inventory could prove useful if it were used with the true intention of helping a consenting individual learner in a training situation, unless the administrators are entirely certain that motives are beneficial to the learner in some way, rather than being exclusively helpful to the organization, the researcher intends that the inventory be taken anonymously. Even collectively, the instrument could be misused, and administrators and educators should exercise great caution in the handling of derived data.

Having noted these potential misuses, they should not be given undue consideration in assessing the instrument overall simply because these potentially harmful aspects are shared by nearly all (if not all) commonly used inventories. A common example would be personality inventories. While the researcher has been present in cases where certain established personality inventories have been used in a helpful, constructive manner, in which individual employees/learners clearly benefitted, the potential for such inventories to be used as bars to employment, salary increases, and promotion, is also possible. Like every case of psychometric inventory use, theoretical acuity and mathematical accuracy cannot be divorced from social responsibility. Having acknowledged the potential dangers associated with a diagnostic resistance inventory, the next section will address the significance of the study.

Implications of the Study

When considering the statistical results of this study, there are two distinctly clear explanations for the extremely high intra-scale correlations. The first is that the individual scales are, as purported, measuring the proposed distinct latent constructs – resistance, resentment, disinterest, overconfidence, and perceived social norms – and the high correlations reflect either nuances of the sample/population, or unique interactions between the individual constructs due to the high degree of influence each might have on the others in a learning situation. The researcher thinks it unlikely that participant response bias influenced the data based on (a) the researcher's experience-based knowledge of the study population, (b) the anonymous nature of the instrument, (c) the generic name assigned to the instrument and its carefully worded administration, and (d) the statistical descriptive of the data, indicating a fairly consistent pattern across many different districts/precincts, police units, and levels of rank. If further research provides a greater degree of discriminate validity, the instrument will be able to be utilized as it

was originally intended, to measure levels of resistance to learning and related, potential causal factors in workplace educational settings. Additionally, these scales could be further contextualized for different workplace environments, or other educational settings.

The second possibility is that all of these scales are measuring some aspect of the same latent construct. In other words, there is only one factor instead of the researcher's claim of five. While the researcher thinks it more probable that the scales do measure five distinct constructs, a one-factor model also renders theoretical and practical significance for the learning resistance knowledge base. The following paragraphs expand on this line of thought.

As discussed in Chapter II, Brookfield (2006) claimed that learning resistance is caused by factors such as dislike of the facilitator, and/or the apparent irrelevance of the learning activity. Atherton (1999) addresses situational resistance, which has at its roots, causes similar those provided by Brookfield. Many scholars have suggested that some form of resentment underlies much learning resistance (Giroux, 2001; Moore, 2007). It is unnecessary to restate all the causes of learning resistance as found in the literature, as those are addressed previously, but these few represent the constructs specified for this study. Significantly, many of the purported "causes" of learning resistance provided by the professional literature, are merely anecdotal in nature. The limited empirical support for some of the most commonly accepted reasons for resistance does not make them less accurate per se, or less useful in practice, but empirical evidence of these underlying "causes" is highly useful in supporting commonly accepted beliefs about learners, and providing a stepping off point for more empirical work involving resistance.

The multi-scale instrument designed in this study provided construct specifications for such alleged causes as resentment, overconfidence, disinterest, and perceived social norms. The wording of these items clearly asks the learners to report feelings, attitudes, and perceptions

related to workplace learning, teachers/instructors, content, and other particulars of their respective learning experiences. That there were such high correlations between the individual factors, while presenting some problematic psychometric properties for the scales, provides a great deal of empirical evidence of the relationship these various aspects of the educational experience share with one another. Any doubt about the related nature of the different feelings, thoughts, and perceptions of learners as addressed in this study can be put to rest. For example, if the items of the overconfidence scale load onto the resistance scale, then one can look at the items of the overconfidence scale (i.e. Q15 – "I already know most of what we are taught in [our training classes]"), and see that if a learner believes he or she already knows most of the material in the class (whether they actually do or not) that learner will more likely resist learning (i.e. the expression of that attitude will correlate highly with self-reported behaviors such as Q19 – "I don't pay attention in [our training classes]"). This example can be repeated for any combination of the constructs.

Construct specification alone does not provide suitable psychometric evidence of a scale's distinct validity, however, theoretical and logical power cannot be removed from any analysis of statistical information. Ableson (1995) wrote that "somewhere along the line in the teaching of statistics in the social sciences, the importance of good judgment got lost amidst the minutiae…." (p. 2). Similarly, Garson points out that theory must be utilized in all forms of factor analysis because factors are "notoriously difficult" to name, and that in nearly all steps of confirmatory factor analysis and structural equation modeling, close attention must be given theory to guide the interpretation of indices (2009).

Finally, should these scales not be demonstrated to be discriminant in future studies, an extremely reliable ($\alpha = .956$) one-factor resistance inventory has been constructed, consisting of

37 items. A 14-item short scale ($\alpha = .86$) is also among the outputs of this study. Both of these scales show a significant negative correlation with the openness scale, indicating known-group validity. While this scale may not provide the complex level of diagnostic service that the intended five-factor scale would have, it could still be used, very reliably to measure levels of learning resistance in an organization both individually and in the aggregate. Norming the scale in future studies would provide a useful index by which organizational administrators and educators could evaluate the culture of resistance in their respective workplaces. A baseline as established with the norming procedures would provide some basis for determining how significant the resistance dynamic may be in a specific context.

Conclusion of Findings

In view of the findings of this study it is clear that there is a strong relationship between feelings of resentment, overconfidence, disinterest, perceived social norms, and resistance to learning. These relationships have been discussed in the literature, and Chapter II contains many citations in which one or more of these relationships is discussed. This study provides empirical evidence of those relationships and opens up other avenues of research as discussed in the next section.

Surprisingly, there also seems to be a relationship among each of the variables, which was unexpected but can be supported conceptually and theoretically. While evidence for these relationships can be found in the construct specification and the nature of the items of the respective scales, there is clearly a need for further validation, particularly in the form of discriminant validation. With further validation, these scales may be used in a diagnostic manner to identify and mitigate resistance, but in the face of such high intra-correlations, it can still be argued that strong relationships exist between these variables.

The Resistance Scale correlated negatively with the openness scale, indicating known-group validation based on nomological networks. As a highly reliable scale, the resistance scale could be used alone or along with the other scales. Further validation will also be necessary for this scale but as stated elsewhere in this dissertation, validation is a process (Nunnally and Bernstein, 1994).

Finally, multiple nested models can be run in AMOS to test other aspects of the hypothesized model (beyond CFA) and a better model fit may be found. It is the researcher's intention to continue working with the scales to more fully substantiate their validity and provide strong scales for future use.

Implications for Future Research

One of the major considerations the researcher made throughout this research process was to attempt to approach learning resistance from an eclectic perspective. Much of the literature in resistance is fragmented and approached from often dichotomous sub-fields of study. While critical theorists have worked successfully to reveal the influence of power differentials on learning resistance, more cognitively-focused scholars approached from a more restricted internal focus. Socio-cultural perspectives have, perhaps, achieved a more common ground but have also tended to limit descriptions and explanations of resistance to a particular theoretical approach. While this, of course, makes sense given the highly specialized nature of scholarly activity, it was this researcher's goal to address resistance as thoroughly and comprehensively as possible, understanding that any learning context consists of the interplay of all of these different dynamics, not just one or the other.

Approaching any dynamic such as learning resistance from a very specific, specialized perspective is efficient and useful, but given the silo-like effect of the academic fields of

scholarship, that is, the tendency of scholars to remained isolated in their own fields, it is an extremely valuable pursuit to engage in multidisciplinary study of such dynamics. To that end, the researcher strongly suggests more multi-disciplinary studies of learning resistance, both quantitative and qualitative. The researcher's plans for future studies include further validation studies for the 4FLEI, particularly related to discriminant validity, broadening research to multiple other demographics and domains, and more generative, qualitative studies of resistance.

Conclusion

When looking over all of the information and data contained in this dissertation, some general conclusions become apparent. First, learning resistance is complex and consists of many different causes, many of which may interact with one another, making it difficult to analyze, even from a strictly theoretical standpoint. Despite this, it is possible to bridge a rather significant gap in the professional literature by providing a unified framework for understanding learning resistance. In this study, both in the literature review and model design, the researcher approached resistance from cognitive, sociocultural, and critical theory perspectives in an attempt to cover the full spectrum of the learning resistance dynamic. While it may be efficacious for a given scholar to approach a dynamic such as resistance from his or her specialized area of study, the tendency to view it as a dichotomously-defined phenomenon is unnecessary and often inhibiting of our overall understanding of it.

Second, contentions in the literature that overconfidence, disinterest, resentment, and perceived social norms, are strongly related to learning resistance can be empirically substantiated in this study.

Third, this study conveys, in a powerful way, the need for more empirically-based research on learning resistance and its related constructs. While quantitative research is well

suited to hypotheses testing, correlational relationships, and establishing cause and effect relationships, qualitative approaches should be utilized as well for purposes of examining more closely the complex nuances of human learning, which, in many cases, cannot be addressed by conventional quantitative methodology. The generative nature of qualitative studies have contributed greatly to the contemporary understanding of learning resistance (i.e. Atherton, 1999; Burroughs et al., 1989; Field and Olafson, 1999; Seiler, Tobin, and Sokolic, 2001; Spector, Burkett, and Leard, 2007), and it is clear that more similar studies will round out common understanding of learning resistance and its many implications for the learner. Conversely, more quantitative and experimental research can be used to triangulate findings and strengthen the understanding of resistance to learning.

Perhaps the most important consideration when studying resistance to learning is that it must be viewed as a multi-faceted phenomenon that can, at times, be positive, negative, or even neutral in terms of value. Often it may be all three depending on who is assessing the value. Teachers and students often approach resistance from different perspectives. In order to have the fullest understanding of learning resistance as a concept, scholars and practitioners alike must understand the transcendent nature of resistance and avoid trying to confine it to a given domain, discipline, or philosophical approach. Only then will the literature on learning resistance lose its fragmented nature and become more concise, organized, and informative.

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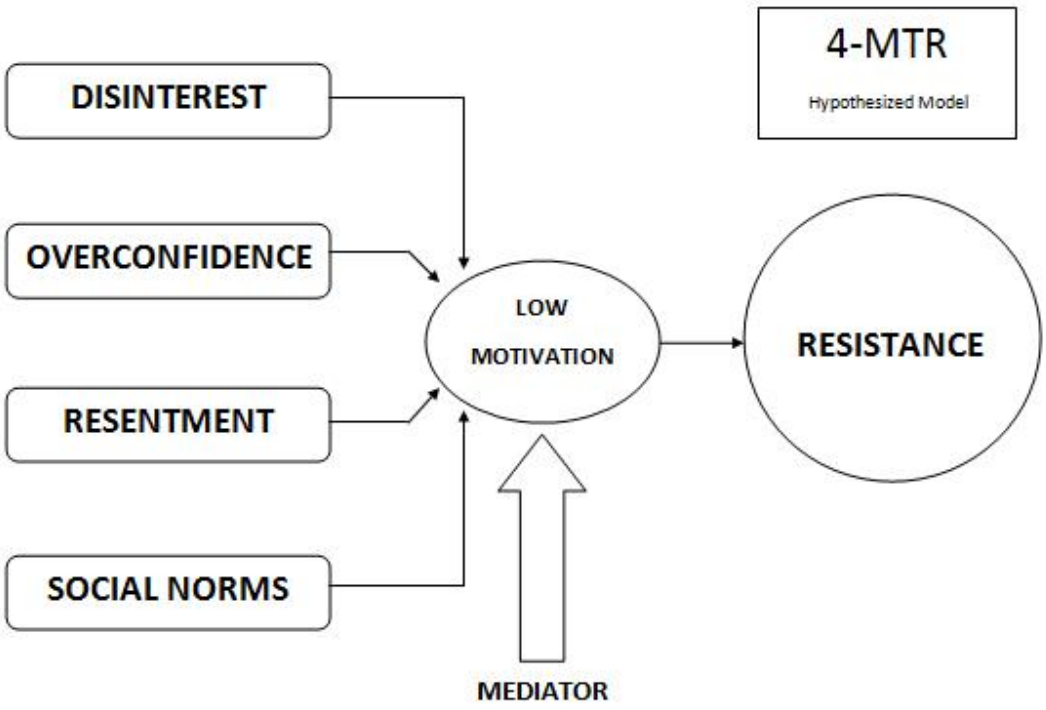
APPENDICES

APPENDIX A

Hypothesized Mediation Model

(Motivation)



APPENDIX B

B.A.T.s and B.A.M.s
Plax, Kearney, McCroskey, and Richmond (1986)

Behavior Alteration Techniques (BATs)	Behavior Alternation Messages (BAMs)
Immediate reward from behavior	You will enjoy it. It will make you happy. Because it's fun. You'll find it rewarding/interesting. It's a good experience
Deferred Reward	It will help you later on in life. It will prepare you for college (or high school, job, etc.). It will prepare you for your achievement tests. It will help you with upcoming assignments
Reward from Teacher	I will give you a reward if you do. I will make it beneficial to you. I will give you a good grade (or recess, extra credit) if you do. I will make you my special assistant
Reward from Others	Others will respect you if you do. Others will be proud of you. Your friends will like you if you do. Your parents will be pleased
Self-Esteem	You will feel good about yourself if you do. You are the best person to do it. You are good at it. You always do such a good job. Because you're capable!
Punishment from Behavior	You will lose if you don't. I will make it miserable for you. I will give you an "F" if you don't. If you don't do it now, it will be homework tonight.
Punishment from Others	No one will like you. Your friends will make fun of you. Your parents will punish you if you don't. Your classmates will reject you.
Guilt	If you don't, others will be hurt. You'll make others unhappy if you don't. Your parents will feel bad if you don't. Others will be punished if you don't.
Teacher/Student Relationship: Positive	I will like you better if you do. I will respect you. I will think more highly of you. I will appreciate you more if you do. I will be proud of you.
Teacher/Student Relationship: Negative	I will dislike you if you don't. I will lose respect for you. I will think less of you if you don't. I won't be proud of you. I'll be disappointed in you.

B.A.T.s and B.A.M.s
Plax, Kearney, McCroskey, and Richmond (1986)

Behavior Alteration Techniques (BATs)	Behavior Alternation Messages (BAMs)
Legitimate-Higher Authority	Because I told you to. You don't have a choice. You're here to work! I'm the teacher, you're the student. I'm in charge, not you. Don't ask, just do it.
Personal (student) Responsibility	It is your obligation. It is your turn. Everyone has to do his/her share. It's your job. Everyone has to pull his/her own weight.
Responsibility to Class	Your group needs it done. The class depends on you. All your friends are counting on you. Don't let your group down. You'll ruin it for the rest of the class (Team).
Normative Rules	We voted, and the majority rules. All of your friends are doing it. Everyone else has to do it. The rest of the class is doing it. It's part of growing up.
Debt	You owe me one. Pay your debt. You promised to do it. I did it the last time. You said you'd try this time.
Altruism	If you do this it will help others. Others will benefit if you do. It will make others happy if you do. I'm not asking you to do it for yourself; do it for the good of the class.
Peer modeling	Your friends do it. Classmates you respect do it. The friends you admire do it. Other students you like do it. All your friends are doing it.
Expert Teacher	From my experience, it is a good idea. From what I have learned, it is what you should do. This has always worked for me. Trust me, I know what I'm doing. I had to do this before I became a teacher.
Teacher Feedback	Because I need to know how well you understand this. To see how well you can do it. It will help me to know your problem areas.

APPENDIX C

Steps for Reducing Resistance in the Classroom
(Torrance, 1949)

1. Creating a permissive, non-blaming objective group atmosphere.
2. Organizing small special interest groups based on a combination of the expressed interests of the members and their sociometric choices.
3. Providing for individual conferences with each member as a part of the "limits" of the course.
4. Using role playing and situation testing (to cut through the thick crust of somber abstraction that commonly encases the classroom and to give common experiences as a basis for discussion).
5. Using critiques in which students can give their private reactions, express negative feelings, and make critical evaluations.
6. Recognizing and accepting the criticisms and desires of the group, and permitting them the experience of making group decisions regarding their activities.
7. Encouraging and assisting individuals in the achievement of success in working out a solution to some problem in a group of which he is a member.
8. Emphasizing the self-relatedness aspects of the course in discussions, conferences, readings, term projects, critiques, etc.
9. Using devices which make it easy for students critically to evaluate the opinions of the instructor, the writer of the text and of other readings, and other "authorities."
10. Occasionally judiciously using complacency shock to stir up inert, complacent, self-righteous individuals, and to stir up the group when it becomes dull, listless, and acquiescent.
11. Recognizing, analyzing, an evaluating the resistances of the instructor to correct for "teacher bias" or "teacher error."
12. Attempting to understand the nature of "cumulative" resistances of the individual group members.
13. Providing the sincerity of the instructor about the matter of student responsibility for learning early in the course.
14. Helping the group and individual members of the group to become aware of their resistances.
15. Assisting each student to understand the "totality that he is" through personality tests, self-evaluation, etc.
16. Assisting each member to achieve a feeling of acceptance and security in the group by helping them to make their "unique contribution," by grouping and re-grouping, by helping them to think of themselves as experiencing creative individuals with a status to uphold, and by the genuine acceptance of the instructor.

APPENDIX D

The University of Tennessee

Research Study Information Sheet

Learning Efficiency Inventory Research

INTRODUCTION

You are invited to participate in a research study. The purpose of this study is to examine the learning efficiency of those involved in in-service training contexts. This study is being conducted as a doctoral dissertation.

INFORMATION ABOUT PARTICIPANTS' INVOLVEMENT IN THE STUDY

If you agree to be a part of this study you will be asked to complete a questionnaire. The questionnaire should only require about 5-10 minutes of your time. The questionnaire will be completed anonymously and will not contain any information which could identify you personally.

RISKS

There are no foreseeable risks to you in this study. If you choose not to participate you will not be penalized in any way.

BENEFITS

Participation in this study has no direct benefit to you. However, results from the study may lead to a better understanding to individual learning and may contribute positively to in-service training in the future.

CONFIDENTIALITY

No personal identifying information will be collected from you at the time you take the questionnaire. All data will be statistically analyzed as anonymous data.

CONTACT INFORMATION

If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study,) you may contact the researcher, Jonathan Taylor at 410-596-2328 and/or jtaylor@utk.edu. If you have questions about your rights as a participant, contact the Office of Research Compliance Officer at (865) 974-3466.

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at anytime without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed. Return of the completed survey (questionnaire) constitutes your consent to participate.

APPENDIX E

1A

4-FLEI

INSTRUCTIONS: As you read each of the following sets of phrases, think about how you act most of the time or how you most characteristically feel or think when you are at work (on your job). For each item, select either 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree, selecting the one that matches most closely to what you feel to be true. Please be sure to complete all items on all three pages.

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

		SD	D	A	SA
1.	I am usually very interested in the topic of the MIR class.	1	2	3	4
2.	There is not much in MIR that I find interesting.	1	2	3	4
3.	In MIR I usually talk to those around me to pass the time.	1	2	3	4
4.	I am often frustrated at having to waste my time with MIR.	1	2	3	4
5.	Among officers, it is generally expected that we make the best of MIR classes and try to learn something.	1	2	3	4
6.	Most of us realize that we know more than the instructors and don't really need MIR classes.	1	2	3	4
7.	Having to take MIR classes is annoying.	1	2	3	4
8.	I need to know the things that are taught in MIR.	1	2	3	4
9.	Usually the content of the MIR classes makes me want to pay attention.	1	2	3	4
10.	I like to learn about how foreign police departments do things.	1	2	3	4
11.	In MIR I usually do something to pass the time like read, doodle, text message, or play games on my phone.	1	2	3	4
12.	I usually know more about the topics than the instructors do in MIR.	1	2	3	4
13.	I just can't seem to "get into" the material presented in our MIR classes.	1	2	3	4
14.	Learning about a new scientific break-through is very interesting to me.	1	2	3	4
15	I get up and leave the room often during MIR just to avoid class				
16.	I already know most of what we are taught in MIR.	1	2	3	4
17.	In MIR I often think of something other than the class.	1	2	3	4
18.	There is a lot I can learn from our MIR classes.	1	2	3	4
19.	The idea of lifelong learning appeals to me.	1	2	3	4
20	I don't pay attention in MIR classes.	1	2	3	4
21.	I find that often the things we learn in MIR will help me do my job better.	1	2	3	4
22.	In MIR classes I often "tune out" what the instructor is saying.	1	2	3	4
23.	The general consensus is that the best way to get through MIR is to just do other things during the class.	1	2	3	4
24.	I don't mind that I have to attend MIR classes.	1	2	3	4
25.	I like to learn the customs and practices of other countries.	1	2	3	4
26.	A lot of times I intentionally don't cooperate with the instructor in MIR	1	2	3	4
27.	Just about everyone thinks our MIR is a waste of time.	1	2	3	4
	****PLEASE CONTINUE ON THE NEXT PAGE****				

2A

4-FLEI

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

		SD	D	A	SA
28.	In MIR I usually disagree with the instructor.	1	2	3	4
29.	I just don't care much about what we are taught in MIR.	1	2	3	4
30.	I usually look for any opportunity to get out of MIR.	1	2	3	4
31.	I usually find that it is easy to pay attention in MIR classes.	1	2	3	4
32.	I am really frustrated at the department for the way MIR is set up.	1	2	3	4
33.	It is generally assumed that we are only in MIR classes because we have to be.	1	2	3	4
34.	MIR is irritating.	1	2	3	4
35.	Most officers think that if we didn't have to be taking MIR we would probably be learning more important things on our own.	1	2	3	4
36.	I would like a job where I had to continually learn new methods and procedures.	1	2	3	4
37.	I try to make it difficult for the instructor during MIR	1	2	3	4
38.	Almost everyone I know thinks MIR classes are really useful.	1	2	3	4
39.	During MIR I usually find myself thinking negative thoughts.	1	2	3	4
40.	I know more about my job than most of the instructors in the training staff.	1	2	3	4
41.	I joke around a lot during MIR classes to keep them interesting	1	2	3	4
42.	Being required to attend MIR seems reasonable and fair to me.	1	2	3	4
43.	I would prefer to work in an innovative department where there is a lot of change.	1	2	3	4
44.	In MIR classes I often realize that I know more than the instructor.	1	2	3	4
45.	I sometimes try to "trip up" the instructor in MIR classes.	1	2	3	4
46.	A lot of new ideas brought up at work do not really improve things much.	1	2	3	4
47.	The material presented in MIR class is usually about things I am interested in.	1	2	3	4
48.	I often argue with the instructor in MIR classes	1	2	3	4
49.	If the company I worked for had offices around the world, I would like to work there for a while to see how they do things.	1	2	3	4
50.	It is irritating that we have to sit through MIR classes.	1	2	3	4
51.	While in MIR classes I tend to think about how useless the class is.	1	2	3	4
52.	I resent having to take MIR classes.	1	2	3	4
53.	I usually look forward to what the instructor has to say in MIR.	1	2	3	4
54.	MIR doesn't help me do my job at all.	1	2	3	4
55.	It is generally accepted that MIR is not all that important.	1	2	3	4
56.	Sometimes in MIR I just mentally "check out" and stop listening.	1	2	3	4
	****PLEASE CONTINUE ON THE NEXT PAGE****				

3A

4-FLEI

1 = Strongly Disagree **2 = Disagree** **3 = Agree** **4 = Strongly Agree**

57.	How many years have you been a police officer? **(1)** 5-10 years **(2)** 10-15 years **(3)** 15-20 years **(4)** 20 or more years	1	2	3	4
58.	What is your rank? **(1)** officer **(2)** Sgt. **(3)** Lt. **(4)** Captain or above	1	2	3	4
59.	How old are you? **(1)** 21-30 **(2)** 31-40 **(3)** 41-50 **(4)** 51 or older	1	2	3	4
60.	What is your current assignment? **(1)** Patrol **(2)** Specialized **(3)** Admin	1	2	3	4
61.	Are you Male or Female? **(1)** Male **(2)** Female	1	2		
62.	What is your race/ethnicity: (PLEASE INDICATE BELOW) ____Caucasian/White ____Black/African American ____Hispanic/Latino ____Asian ____Aleut/Pacific Islander ____Arabic ____India(n) ____Native North American ____Other				

Thank you for taking the time to complete this survey! If you have additional comments you would like to make regarding your views of MIR training and how you learn in those classes, you may write in the box below.

Additional Comments:

APPENDIX F

4FLEI VERSION A
Breakdown of Individual Constructs by Item

#	Code	CONSTRUCT	ITEM
3	AR1	Active Resistance	In MIR I usually talk to those around me to pass the time
11	AR2	Active Resistance	In MIR I usually do something to pass the time like read, doodle, text message, or play games on my phone
15	AR3	Active Resistance	I get up and leave the room often during MIR just to avoid class
26	AR4	Active Resistance	A lot of times I intentionally don't cooperate with the instructor in MIR
37	AR5	Active Resistance	I try to make it difficult for the instructor during MIR
41	AR6	Active Resistance	I joke around a lot during MIR classes to keep them interesting
45	AR7	Active Resistance	I sometimes try to "trip up" the instructor in MIR class.
48	AR8	Active Resistance	I often argue with the instructor in MIR classes
17	PR1	Passive Resistance	In MIR I often think of something other than the class
22	PR3	Passive Resistance	In MIR classes I often "tune out" what the instructor is saying
28	PR4	Passive Resistance	In MIR I usually disagree with the instructor.
30	PR5	Passive Resistance	I usually look for any opportunity to get out of MIR
39	PR6	Passive Resistance	During MIR I usually find myself thinking negative thoughts.
51	PR7	Passive Resistance	While in MIR classes I tend to think about how useless the class is
20	PR2	Passive Resistance	I don't pay attention in MIR classes
56	PR8	Passive Resistance	Sometimes in MIR I just mentally "check out" and stop listening

#	CODE	CONSTRUCT	ITEM
1	D1	Disinterest	I am usually very interested in the topic of the MIR class (RC)
2	D2	Disinterest	There is not much in MIR that I find interesting
9	D3	Disinterest	Usually the content of the MIR classes makes me want to pay attention (RC)
13	D4	Disinterest	I just can't seem to "get into" the material presented in our MIR class
29	D5	Disinterest	I just don't care much about what we are taught in MIR
31	D6	Disinterest	I usually find that it is easy to pay attention in MIR
47	D7	Disinterest	The material presented in MIR class is usually about things I am interested in
53	D8	Disinterest	I usually look forward to what the instructor has to say in MIR

#	CODE	CONSTRUCT	ITEM
8	OVR1	Overconfidence	I need to know the things that are taught in MIR (RC)
12	OVR2	Overconfidence	I usually know more about the topics than the instructors do in MIR
16	OVR3	Overconfidence	I already know most of what we are taught in MIR
18	OVR4	Overconfidence	There is a lot I can learn from our MIR (RC)
21	OVR5	Overconfidence	I find that often the things we learn in MIR will help me do my job better (RC)
40	OVR6	Overconfidence	I know more about my job than most of the instructors in the training staff
44	OVR7	Overconfidence	In MIR classes I often realize that I know more than the instructor
54	OVR8	Overconfidence	MIR doesn't help me do my job at all

Breakdown of Individual Constructs by Item

#	CODE	CONSTRUCT	ITEM
4	RSN1	Resentment	I am often frustrated at having to waste my time with MIR
7	RSN2	Resentment	Having to take MIR classes is annoying
24	RSN3	Resentment	I don't mind that I have to attend MIR classes (RC)
32	RSN4	Resentment	I am really frustrated at the department for the way MIR is set up
34	RSN5	Resentment	MIR is irritating
42	RSN6	Resentment	Being required to attend MIR seems reasonable and fair to me (RC)
50	RSN7	Resentment	It is irritating that we have to sit through MIR classes
52	RSN8	Resentment	I resent having to take MIR classes

#	CODE	CONSTRUCT	ITEM
5	PSN1	P. Social Norms	Among officers, it is generally expected that we make the best of MIR classes and try to learn something
6	PSN2	P. Social Norms	Most of us realize that we know more than the instructors and don't really need MIR classes
23	PSN3	P. Social Norms	The general consensus is that the best way to get through MIR is to just do other things during the class
27	PSN4	P. Social Norms	Just about everyone thinks our MIR is a waste of time
33	PSN5	P. Social Norms	It is generally assumed that we are only in MIR classes because we have to be
35	PSN6	P. Social Norms	Most officers think that if we didn't have to be taking MIR we would probably be learning more important things on our own.

38	PSN7	P. Social Norms	Almost everyone I know thinks MIR classes are really useful (RC)
55	PSN8	P. Social Norms	It is generally accepted that MIR is not all that important

#	CODE	CONSTRUCT	ITEM
10	OPN1	Openness	I like to learn about how foreign police departments do things
14	OPN2	Openness	Learning about a new scientific break-through is very interesting to me
19	OPN3	Openness	The idea of lifelong learning appeals to me
25	OPN4	Openness	I like to learn the customs and practices of other countries
36	OPN5	Openness	I would like a job where I had to continually learn new methods and procedures
43	OPN6	Openness	I would prefer to work in an innovative department where there is a lot of change
46	OPN7	Openness	A lot of new ideas brought up at work do not really improve things much
49	OPN8	Openness	If the company where I worked had offices around the world, I would like to work there for a while to see how they do things.

APPENDIX G

STUDY # 1 SCALE REVISIONS

Resistance Scale

#	Item	Reason Dropped/Modified
3	In MIR I usually talk to those around me to pass the time.	Deleted in error. This was a strong item.
17	In MIR I often think of something other than the class.	Wording vague. Interpretation questionable

Disinterest Scale

#	Item	Reason Dropped/Modified
2	There is not much in MIR that I find interesting	Higher α"if item deleted" from .887 to .894 Moved item from #2 to #24.

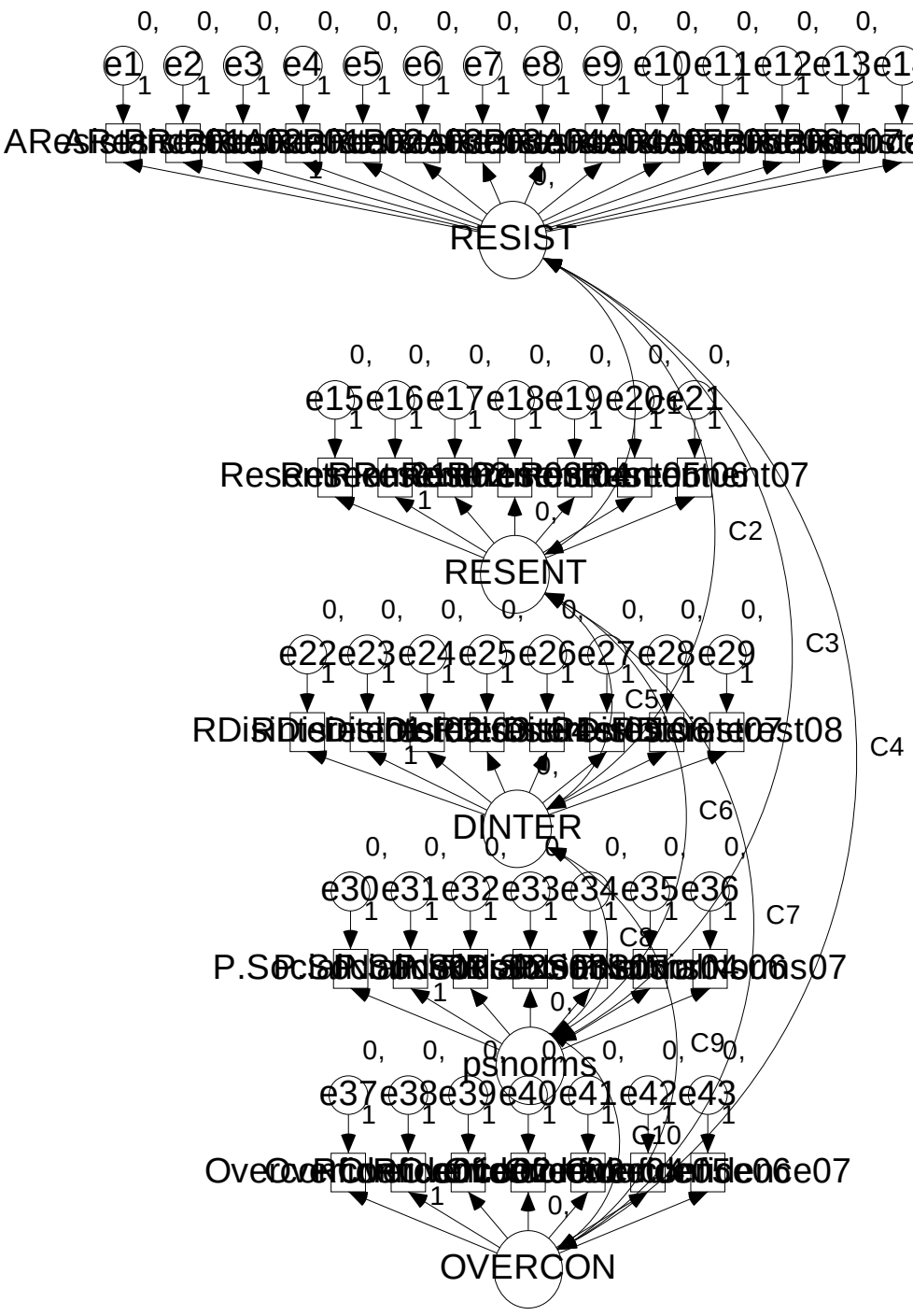
Perceived Social Norms Scale

#	Item	Reason Dropped/Modified
38	Among Officers, it is generally expected that we make the best of MIR classes and try to learn something	Corrected item-total correlation of .267

Overconfidence Scale

#	Item	Reason Dropped/Modified
8	I need to know the things that are taught in MIR	Higher α "If item deleted" from .795 to .803

APPENDIX H



SEM CONFIRMATORY FACTOR ANALYSIS MODEL

APPENDIX I

1B

4-FLEI

INSTRUCTIONS: As you read each of the following sets of phrases, think about how you act most of the time or how you most characteristically feel or think when you are at work (on your job). For each item, select either 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree, selecting the one that matches most closely to what you feel to be true. Please be sure to complete all items on all three pages.

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

		SD	D	A	SA
1.	I am usually very interested in the topic of the MIR class.	1	2	3	4
2.	Others who know me well would say I am very open to new ways of doing things.	1	2	3	4
3.	I am often frustrated at having to waste my time with MIR.	1	2	3	4
4.	My friends would not say I have a lot of curiosity about things in general.	1	2	3	4
5.	Most of us realize that we know more than the instructors and don't really need MIR classes.	1	2	3	4
6.	Having to take MIR classes is annoying.	1	2	3	4
7.	I would like a job where I had to continually learn new methods and procedures.	1	2	3	4
8.	Usually the content of the MIR classes makes me want to pay attention.	1	2	3	4
9.	In MIR I usually do something to pass the time like read, doodle, text message, or play games on my phone.	1	2	3	4
10.	I don't find it fun to learn and develop new hobbies.	1	2	3	4
11.	I usually know more about the topics than the instructors do in MIR.	1	2	3	4
12.	I just can't seem to "get into" the material presented in our MIR classes.	1	2	3	4
13.	I like to learn about how foreign companies do business.	1	2	3	4
14.	I get up and leave the room often during MIR just to avoid class	1	2	3	4
15.	I already know most of what we are taught in MIR.	1	2	3	4
16.	A lot of new ideas brought up at work do not really improve things much.	1	2	3	4
17.	There is a lot I can learn from our MIR classes.	1	2	3	4
18.	Learning about a new scientific break-through is very interesting to me.	1	2	3	4
19.	I don't pay attention in MIR classes.	1	2	3	4
20.	I find that often the things we learn in MIR will help me do my job better.	1	2	3	4
21.	In MIR classes I often "tune out" what the instructor is saying.	1	2	3	4
22.	The general consensus is that the best way to get through MIR is to just do other things during the class.	1	2	3	4
23.	I don't mind that I have to attend MIR classes.	1	2	3	4
24.	There is not much in MIR that I find interesting.	1	2	3	4
25.	A lot of times I intentionally don't cooperate with the instructor in MIR	1	2	3	4
26.	Just about everyone thinks our MIR is a waste of time.	1	2	3	4
	****PLEASE CONTINUE ON THE NEXT PAGE****				

2B

4-FLEI

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

		SD	D	A	SA
27.	I would like to learn more about other countries and their cultures.	1	2	3	4
28.	In MIR I usually disagree with the instructor.	1	2	3	4
29.	I usually find that it is easy to pay attention in MIR classes.	1	2	3	4
30.	I just don't care much about what we are taught in MIR.	1	2	3	4
31.	I usually look for any opportunity to get out of MIR.	1	2	3	4
32.	Almost everyone I know thinks MIR classes are really useful.	1	2	3	4
33.	I prefer to work on new tasks that I have not done before.	1	2	3	4
34.	It is generally assumed that we are only in MIR classes because we have to be.	1	2	3	4
35.	MIR is irritating.	1	2	3	4
36.	Most officers think that if we didn't have to be taking MIR we would probably be learning more important things on our own.	1	2	3	4
37.	I would prefer to work in an innovative company where there is a lot of change.	1	2	3	4
38.	I try to make it difficult for the instructor during MIR	1	2	3	4
39.	The idea of life-long learning appeals to me.	1	2	3	4
40.	I would not like to continue my education just to learn new things.	1	2	3	4
41.	During MIR I usually find myself thinking negative thoughts about the class.	1	2	3	4
42.	I know more about my job than most of the instructors in the training staff.	1	2	3	4
43.	I joke around a lot during MIR classes to keep them interesting	1	2	3	4
44.	Being required to attend MIR seems reasonable and fair to me.	1	2	3	4
45.	I lose interest when people talk about world affairs.	1	2	3	4
46.	In MIR classes I often realize that I know more than the instructor.	1	2	3	4
47.	I sometimes try to "trip up" the instructor in MIR classes.	1	2	3	4
48.	If the company I worked for had offices around the world, I would like to work there for a while to see how they do things.	1	2	3	4
49.	The material presented in MIR class is usually about things I am interested in.	1	2	3	4
50.	I often argue with the instructor in MIR classes	1	2	3	4
51.	I would find it pleasant to work with people who had different lifestyles and customs from my own.	1	2	3	4
52.	It is irritating that we have to sit through MIR classes.	1	2	3	4
53.	While in MIR classes I tend to think about how useless the class is.	1	2	3	4
54.	I resent having to take MIR classes.	1	2	3	4
	****PLEASE CONTINUE ON THE NEXT PAGE****				

3B

4-FLEI

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

		SD	D	A	SA
55.	I usually look forward to what the instructor has to say in MIR.	1	2	3	4
56.	MIR doesn't help me do my job.	1	2	3	4
57.	It is generally accepted that MIR is not all that important.	1	2	3	4
58.	Sometimes in MIR I just mentally "check out" and stop listening.	1	2	3	4
59.	I sign up for any training opportunities I can so that I can learn new things.	1	2	3	4
60.	Throughout most of my life I have struggled with being bored.	1	2	3	4
61.	How many years have you been a police officer? **(1)** 0-5 years **(2)** 6-10 years **(3)** 11-15 years **(4)** 16 or more years	1	2	3	4
62.	What is your rank? **(1)** officer **(2)** Sgt. **(3)** Lt. **(4)** Captain or above	1	2	3	4
63.	How old are you? **(1)** 21-30 **(2)** 31-40 **(3)** 41-50 **(4)** 51 or older	1	2	3	4
64.	What is your current assignment? **(1)** Patrol **(2)** Specialized **(3)** Admin.	1	2	3	4
65.	Are you Male or Female? **(1)** Male **(2)** Female	1	2		
66.	What is your highest level of completed education? (1) H. School (2) 2-yr. Degree (3) 4-yr. Degree (4) Graduate Degree	1	2	3	4
67.	My grades in school were mostly (1) A's (2) B's (3) C's (4) D's/F's	1	2	3	4
68.	I teach classes and/or help with dept. police training (1) YES (2) NO				
69.	What is your race/ethnicity: (PLEASE INDICATE BELOW) ____Caucasian/White ____Black/African American ____Hispanic/Latino ____Asian ____Aleut/Pacific Islander ____Arabic ____India(n) ____Native North American ____Other				

Thank you for taking the time to complete this survey! If you have additional comments you would like to make regarding your views of MIR training and how you learn in those classes, you may write in the box below.

Comments:

APPENDIX J

4FLEI VERSION B
Breakdown of Individual Constructs by Item

#	CONSTRUCT	ITEM
9	Resistance	In MIR I usually do something to pass the time like read, doodle, text message, or play games on my phone
14	Resistance	I get up and leave the room often during MIR just to avoid class
38	Resistance	I try to make it difficult for the instructor during MIR
25	Resistance	A lot of times I intentionally don't cooperate with the instructor in MIR
43	Resistance	I joke around a lot during MIR classes to keep them interesting
47	Resistance	I sometimes try to "trip up" the instructor in MIR class.
50	Resistance	I often argue with the instructor in MIR classes
21	Resistance	In MIR classes I often "tune out" what the instructor is saying
28	Resistance	In MIR I usually disagree with the instructor.
31	Resistance	I usually look for any opportunity to get out of MIR
41	Resistance	During MIR I usually find myself thinking negative thoughts about the class.
53	Resistance	While in MIR classes I tend to think about how useless the class is
19	Resistance	I don't pay attention in MIR classes

#	CONSTRUCT	ITEM
1	Disinterest	I am usually very interested in the topic of the MIR class (RC)
24	Disinterest	There is not much in MIR that I find interesting
8	Disinterest	Usually the content of the MIR classes makes me want to pay attention (RC)
12	Disinterest	I just can't seem to "get into" the material presented in our MIR class
30	Disinterest	I just don't care much about what we are taught in MIR
29	Disinterest	I usually find that it is easy to pay attention in MIR
49	Disinterest	The material presented in MIR class is usually about things I am interested in
55	Disinterest	I usually look forward to what the instructor has to say in MIR

#	CONSTRUCT	ITEM
11	Overconfidence	I usually know more about the topics than the instructors do in MIR
15	Overconfidence	I already know most of what we are taught in MIR
17	Overconfidence	There is a lot I can learn from our MIR (RC)
20	Overconfidence	I find that often the things we learn in MIR will help me do my job better (RC)
42	Overconfidence	I know more about my job than most of the instructors in the training staff
46	Overconfidence	In MIR classes I often realize that I know more than the instructor
56	Overconfidence	MIR doesn't help me do my job

	CONSTRUCT	ITEM
3	Resentment	I am often frustrated at having to waste my time with MIR
6	Resentment	Having to take MIR classes is annoying
23	Resentment	I don't mind that I have to attend MIR classes (RC)
44	Resentment	MIR is irritating
42	Resentment	Being required to attend MIR seems reasonable and fair to me (RC)
52	Resentment	It is irritating that we have to sit through MIR classes
54	Resentment	I resent having to take MIR classes

#	CONSTRUCT	ITEM
5	P. Social Norms	Most of us realize that we know more than the instructors and don't really need MIR classes
22	P. Social Norms	The general consensus is that the best way to get through MIR is to just do other things during the class
26	P. Social Norms	Just about everyone thinks our MIR is a waste of time
34	P. Social Norms	It is generally assumed that we are only in MIR classes because we have to be
36	P. Social Norms	Most officers think that if we didn't have to be taking MIR we would probably be learning more important things on our own.
32	P. Social Norms	Almost everyone I know thinks MIR classes are really useful (RC)
57	P. Social Norms	It is generally accepted that MIR is not all that important

#	CONSTRUCT	ITEM
2	Openness	Others who know me well would say I am very open to new ways of doing things.
4	Openness	My friends would not say I have a lot of curiosity about things in general.
7	Openness	I would like a job where I had to continually learn new methods and procedures.
10	Openness	I don't find it fun to learn and develop new hobbies.
13	Openness	I like to learn about how foreign companies do business.
16	Openness	A lot of new ideas brought up at work do not really improve things much.
18	Openness	Learning about a new scientific break-through is very interesting to me.
27	Openness	I would like to learn more about other countries and their cultures.
33	Openness	I prefer to work on new tasks that I have not done before.
37	Openness	I would prefer to work in an innovative company where there is a lot of change.
39	Openness	The idea of life-long learning appeals to me.
40	Openness	I would not like to continue my education just to learn new things.
45	Openness	I lose interest when people talk about world affairs.
48	Openness	If the company I worked for had offices around the world, I would like to work there for a while to see how they do things.
51	Openness	I would find it pleasant to work with people who had different lifestyles and customs from my own.

VITA

Jonathan Taylor was born in Baltimore, Maryland. He is married and has two children. Jonathan received a Bachelor of Science degree in Economics and Political Science in 2000 from Towson University, and a Master of Arts degree in Human Sciences from Hood College in 2006. He worked as a law enforcement training instructor prior to returning to graduate school. Jonathan received his Ph.D. in Educational Psychology and Research in 2010 from the University of Tennessee.